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No. XXIV., OF VOL. I., 1937. LONDON, SATURDAY, JUNE 12, 1937. Pp. 128—Price 1s.
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SPASM is the most common individual manifestation of œsophageal disease, and in the gullet its significance as an entity is probably greater than in any other tubular organ of the human body; in fact as Barclay (1931) has stated when discussing the radiology of the œsophagus, spasm may be responsible for the whole of the symptomatic disturbance presented by any intrinsic or extrinsic lesion. It may be the sole radiological abnormality observed with varying pathological states as intra-œsophageal injury, impaction of small non-opaque foreign bodies, œsophagitis, central and peripheral nervous lesions, and it may mask completely an early œsophageal malignancy. Teschendorf (1928) has described such a case in which a carcinoma of the œsophagus became obvious by radiological examination only after the accompanying spasm had been dissipated by an injection of atropine.

CLASSIFICATION

Anatomically, spasm that develops at either the upper or lower (sphincteric) extremity of the œsophagus can be regarded as distinct from that arising in the intervening (non-sphincteric) part, although their pathology probably is similar. Non-sphincteric spasm may be present in an apparently healthy œsophagus, or it may accompany a true intrinsic lesion. In the earlier articles the former was designated a "primary," "functional," or "idiopathic" spasm, and the latter a "secondary" spasm. Consideration of the ætiology of non-sphincteric spasm of the healthy œsophagus shows that a so-called primary spasm is usually due to an altered state or disease of some other organ of the body, and the term simple non-sphincteric spasm will be used to describe this lesion in the following notes.

Abel (1929) has classified spasm of the non-sphincteric portion of the œsophagus on an ætiological basis as follows:—

(1) Psychological œsophagismus.
(2) Reflex œsophagismus—i.e., spasm secondary to disease of other organs.
(3) Symptomatic œsophagismus—i.e., spasm due to (*a*) disease of the œsophagus itself; (*b*) organic disease of the central or peripheral nervous system; or (*c*) toxic lesions.

All of the above except spasm due to œsophageal disease (3 *a*) and some toxic cases (3 *c*) can be included under the title of simple non-sphincteric spasm.

EXTENT AND TYPES

Simple non-sphincteric spasm may affect one or more segments of the œsophagus, its entire extent or a varying portion of its length, and according to the radiological appearances observed the following types may be described and are shown diagramatically in Fig. 1:—

1. Localised spasm (Fig. 1 B).
2. Diffuse spasm:
   (*a*) tetanic: (1) total (Fig. 1 C), (2) partial (Fig. 1 D).
   (*b*) irregular (Fig. 1 E).
   (*c*) functional diverticula (Fig. 1 F).

Each type may vary considerably in the same and different patients, and occasionally the various types may occur in the same individual.

Localised spasm is probably the most common type. It affects only a small annular segment or segments of the œsophagus (Fig. 7) and when more than two segments are contracted simultaneously

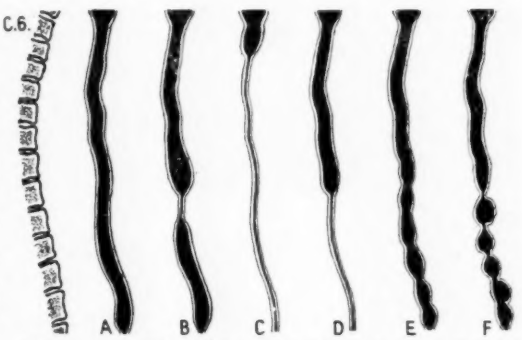

FIG. 1.—A. Normal œsophagus. B. Localised spasm. C. Total tetanic spasm. D. Partial tetanic spasm. E. Diffuse irregular spasm. F. Functional diverticula.

it is advisable to regard the lesion as a type of diffuse spasm. It may be present in any portion of the œsophagus and Reyner (1924) has stated that its site may vary in the same patient.

Diffuse spasm was recorded under this title by Moersch and Camp (1934) and should include the so-called functional diverticula described by Barsony and Polgar (1927) and by Gregoire (1926). The tetanic form of diffuse spasm may involve the entire extent of the gullet so that opaque food cannot enter its lumen and on radiological appearances obstruction at the inlet only may be diagnosed, or it may be confined to the lower half or third of the viscus. Irregular spasm arises in that portion of the œsophagus controlled by unstriated muscle and it appears to be an exaggeration of its normal peristaltic contractions. Kohler (1928) holds that it is very difficult, indeed almost impossible, to observe peristalsis in a normal œsophagus or even above an organic stricture, so that the radiological appearances of this type of spasm are very striking and are well shown in Fig. 4. Functional diverticula (Fig. 8) become manifest only at the height of muscular contraction and they are due to the development of spasticity of two or more segments separated by atonic areas. The radiological appearances vary from that of a simple arching of a small portion of the œsophageal outline to a mushroom- or hat-shaped diverticulum. Gregoire (1926) has described the diverticula as pear-shaped dilatations which overhang the succeeding contracted segments. Often they are multiple—Barsony and Polgar (1927) report 5 cases out of 9 which were multiple—they arise at any level of the œsophagus, and they are associated sometimes with atony of the entire organ or with localised spasm. A functional diverticulum may be the starting point of a true organic pulsion diverticulum, and the writers mentioned above observed such a development in one patient.

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Localised spasm is probably the most common type. It affects only a small annular segment or segments of the œsophagus (Fig. 7) and when more than two segments are contracted simultaneously

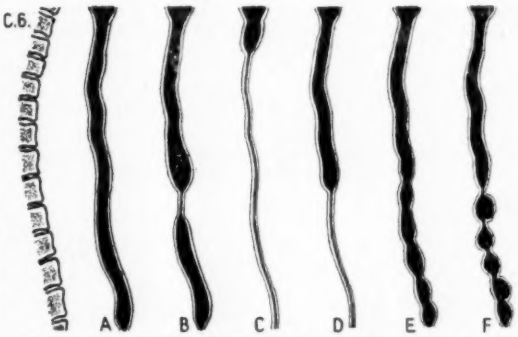

FIG. 1.—A. Normal œsophagus. B. Localised spasm. C. Total tetanic spasm. D. Partial tetanic spasm. E. Diffuse irregular spasm. F. Functional diverticula.

it is advisable to regard the lesion as a type of diffuse spasm. It may be present in any portion of the œsophagus and Reyner (1924) has stated that its site may vary in the same patient.

Diffuse spasm was recorded under this title by Moersch and Camp (1934) and should include the so-called functional diverticula described by Barsony and Polgar (1927) and by Gregoire (1926). The tetanic form of diffuse spasm may involve the entire extent of the gullet so that opaque food cannot enter its lumen and on radiological appearances obstruction at the inlet only may be diagnosed, or it may be confined to the lower half or third of the viscus. Irregular spasm arises in that portion of the œsophagus controlled by unstriated muscle and it appears to be an exaggeration of its normal peristaltic contractions. Kohler (1928) holds that it is very difficult, indeed almost impossible, to observe peristalsis in a normal œsophagus or even above an organic stricture, so that the radiological appearances of this type of spasm are very striking and are well shown in Fig. 4. Functional diverticula (Fig. 8) become manifest only at the height of muscular contraction and they are due to the development of spasticity of two or more segments separated by atonic areas. The radiological appearances vary from that of a simple arching of a small portion of the œsophageal outline to a mushroom- or hat-shaped diverticulum. Gregoire (1926) has described the diverticula as pear-shaped dilatations which overhang the succeeding contracted segments. Often they are multiple—Barsony and Polgar (1927) report 5 cases out of 9 which were multiple—they arise at any level of the œsophagus, and they are associated sometimes with atony of the entire organ or with localised spasm. A functional diverticulum may be the starting point of a true organic pulsion diverticulum, and the writers mentioned above observed such a development in one patient.

DURATION

As a rule all types of spasm are *transient*—there is only a tendency to spastic contraction of the œsophageal muscles, and when this does occur it is of short duration. Occasionally transient spasm is observed accidentally; this happened in Case 5 below, and it is probable that it is more common than is generally believed, but that it escapes recognition owing to its short duration and the absence of symptoms. Less often spasm is *intermittent* as in Cases 4 and 8 below—for example, spasm may occur after some special dietary, thermic or psychical stimulus. Very rarely spasm is *persistent* owing to the continuance of the exciting cause, or possibly to the development of a nerve-cell habit as described by Chevalier Jackson (1934). Thus in Case 2 spasm lasted for 3¾ years, and in Case 1 for 7 weeks. Moersch and Camp (1934) have recorded notes of a patient in whom spasm was present for 9 years, and Barclay (1931) quotes Grier's account of a man with complete obstruction of the middle third of the œsophagus due to spasm which persisted for 2 months.

NERVE-SUPPLY OF THE ŒSOPHAGUS

The type of spasm under discussion is a neurogenic manifestation, and it is necessary to consider briefly the nerve-supply of the œsophagus. This is derived from the vagi and from the sympathetic chains and is shown diagrammatically in Fig. 2. The vagal supply has been recognised for a long time and it is now definitely established that there is also a contribution from the sympathetic system. There are known branches from the inferior cervical ganglia and from the cœliac plexus, which accompany the left gastric artery, but the question of the existence of direct branches from the thoracic sympathetic ganglia is still controversial.

Kuntz (1929) is of the opinion that the sympathetic supply for the œsophagus comes chiefly from the inferior cervical ganglia but that further branches *do* pass directly from the thoracic ganglia, or from these ganglia via the aortic plexus or a plexus in the posterior mediastinum to the gullet. Other writers doubt the existence of a thoracic sympathetic supply. The following short description is quoted from an article by Woollard (1935):—

"Slender sympathetic filaments from the inferior cervical and thoracic sympathetic ganglia travel alongside the intercostal vessels, but they are too small and delicate to trace beyond the front of the vertebral column and the aorta. It seems unlikely that the œsophagus receives other than a very scanty sympathetic supply from the adjacent ganglia. Sympathetic fibres, however, do reach the œsophagus from above, having entered the vagi from the cervical sympathetic chain. The other route by which sympathetic fibres may reach the cardia is by way of the cœliac plexus, from which they may travel in company with the left gastric artery."

As a result of the findings of Cannon (1907), Meltzer (1898), and other investigators it is now generally agreed that vagal stimulation causes increased tonus and mobility of the plain muscle portion of the œsophagus (Fig. 3 B) and that sympathetic stimulation inhibits this (Fig. 3 C). The experimental work of Knight (1935) has done much to explain the varying and often apparently contradictory results obtained by previous workers, for he has shown that the type of reaction obtained by stimulation of the extrinsic nerves of the œsophagus depends upon the nature—whether striated

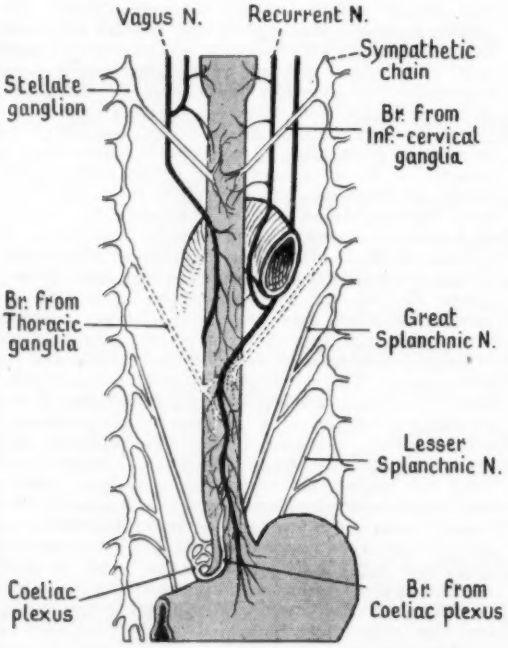

FIG. 2.—Diagram of the nerve-supply of the œsophagus.

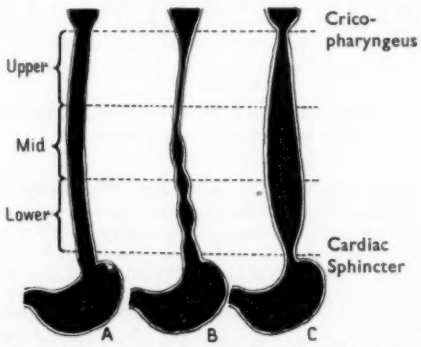

FIG. 3.—A. Normal œsophagus. B. Stimulation of vagi or removal of stellate ganglia. C. Stimulation of sympathetic or division of vagi.

Effect of Nervous Impulses

Region of œsophagus.	Stimulation of vagus alone.	Bilateral removal of stellate ganglia.	Stimulation of stellate ganglia.	Bilateral division of vagi.
Upper third.	Tetanic contraction which only persisted with constant stimulation. No secondary waves.	Hypertonicity.	Nil.	Dilatation with recurring peristalsis in the lower third.
Middle third.	Tetanic contraction followed by secondary waves.	,,	Diminution of tonus or increased contraction.	
Lower third.	Increased tonus and mobility which persisted or continued as a series of secondary waves.	Increased peristalsis.	Slight diminution of tonus and mobility.	
		Sphincter normal.		Contraction of sphincter.

or unstriated—of the muscle content of the region under consideration. In Knight's experiments cats were used, as their œsophagi approach most nearly to man in regard to distribution of striped and unstriped muscle, and his conclusions are given in the Table and shown diagrammatically in Fig. 3.

From a consideration of this it appears that spasm of the œsophagus might be caused by an abnormal increase of stimuli travelling via the vagi, by a decrease or cessation of impulses via the sympathetic, or by an imbalance of the two sets of impulses. The origin of such excitatory or inhibitory impulses is still undetermined, but the findings of Carlson, Boyd, and Pearcy (1922), who showed that stimulation of the gall-bladder, intestines, and urinary bladder gave rise to œsophageal activity, is suggestive; and Alvarez (1928) has stated that inhibitions that are produced by fear, worry, or illness, probably travel by way of the sympathetic.

INCIDENCE

Simple non-sphincteric spasm is not commonly diagnosed as probably in many cases the condition is of very short duration and its symptoms evanescent. Negus (1936) has stated that he has never observed a true example of simple spasm and that although he has examined patients who had been diagnosed as suffering from such by radiologists and physicians they ultimately proved to have an organic œsophageal lesion. Guisez (1923) is of the opinion that simple spasm of the non-sphincteric portion of the œsophagus, except in its upper third, is never seen; Chevalier Jackson (1934) also questions its occurrence, and Baldenweck (1925) regards these cases as rare and ephemeral presenting only in neurotic females and alcoholics. These authoritative statements cannot be disregarded. On the other hand Moersch and Camp (1934) have reported a series of 8 patients with simple diffuse spasm. Teschendorf (1928) and Barsony and Polgar (1929) all have recorded notes of large series of cases, and Sudhues (1932) has called attention to the presence of simple spasm in children. Brown Kelly (1936) considers that this type of obstruction in the œsophagus is quite common, and the present series consists of 8 cases seen in the past five years, 4 of which were described briefly during a recent discussion at the Royal Society of Medicine.

ÆTIOLOGY

This type of spasm may occur at any age. In our series the youngest patient was aged 8 months and the oldest was 79, and it affects both sexes equally. Many theories on the cause of simple non-sphincteric spasm have been advanced.

Congenital inferiority of the sympathetic nervous system in children has been suggested by Sudhues (1932), and Brown Kelly (1936) is of the opinion that in such young patients there may be a congenital predisposition to spasm, which occurs only when the child is ailing or thwarted.

Nervous instability as a cause is mentioned by a large number of observers. Patients who suffer from simple spasm are usually highly strung and nervous, and the attacks may be precipitated by nervous excitement, worry, anger, or grief. Lust (1923 has recorded the occurrence of simple œsophageal spasm in children when presented with food which was distasteful to them. Moersch and Camp (1934) consider that nervous instability is more evident in these cases than it is in patients who suffer from achalasia. Spasm due to emotional disturbances corresponds to Abel's (1929) "psychological œsophagismus," and he has mentioned the theory of Lemaitre that a small superficial abrasion of the œsophageal mucous membrane that would pass unnoticed in a normal person may give rise to spasm in an unduly receptive individual. Bruzzi and Alagna (1930) also consider such slight trauma to be a common causal factor.

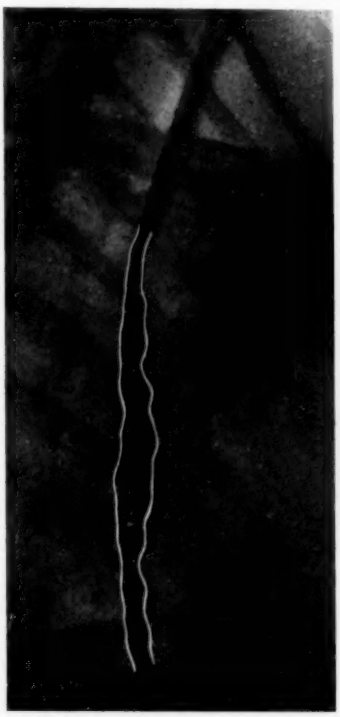

FIG. 4 (Case 1).—Simple diffuse irregular spasm of the lower half of the œsophagus probably due to a phobia. This should be compared with Fig. 124 in Knight's (1935) article which depicts a radiogram of a cat's œsophagus after bilateral removal of the stellate ganglia.

FIG. 5 (Case 2).—Localised spasm of lower œsophagus of 3¼ years' duration, probably due to a phobia. Radiogram shows a smooth stricture with "awl-shaped" end.

Two cases of simple non-sphincteric spasm apparently due entirely to a phobia were present in our series:—

CASE 1.—A female aged 35 stated that 7 weeks previously she thought a crust stuck in her throat, and

since that date she had experienced difficulty and pain on swallowing. General clinical examination was negative. Radiography showed a diffuse irregular outline of the lower half of the œsophagus (Fig. 4). Endoscopy revealed no lesion of the œsophagus, and the symptoms and abnormal radiological appearances disappeared after passage of the œsophagoscope.

It is interesting to note the similarity of the radiological appearances of this patient's œsophagus and that of Fig. 124 in Knight's (1935) article which depicts a cat's œsophagus after bilateral removal of the stellate ganglia.

FIG. 6 (Case 5).—Simple localised spasm of œsophagus observed accidentally in a patient with chronic gastric disease.

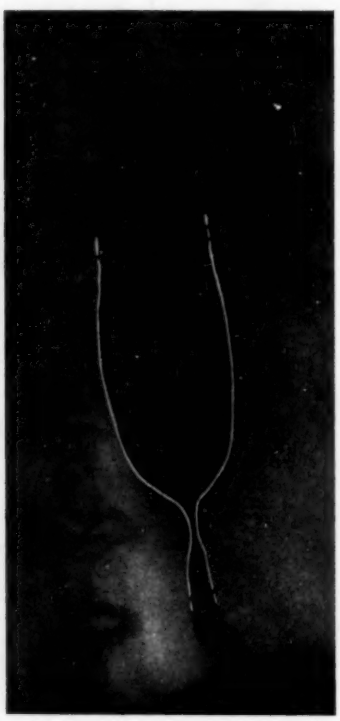

FIG. 7 (Case 7).—Simple localised spasm of œsophagus of 2 days' duration and unknown ætiology. The radiogram shows a smooth rounded outline of the stricture with atony of the upper portion of the œsophagus.

CASE 2.—A female aged 53 stated that she had experienced pain and difficulty in swallowing for 3 months so that she could take only soft food, and that she thought she was "suffering from cancer." General clinical examination was negative. Radiography showed "definite spasm present at lower part of gullet." The blood Wassermann reaction was negative. Œsophagoscopy revealed a stricture with some associated œsophagitis of the lower third of the œsophagus (Fig. 5). This was dilated without improvement in swallowing, and two years later, as the lesion was considered to be neoplastic, a Souttar's tube was inserted into the stricture and left in situ for a year. Six months after removal of the tube the dysphagia disappeared and radiography showed that "the paste made a normal passage to the stomach." The patient has remained well for nine months.

Disorders of deglutition are suggested as a cause of spasm by Guisez (1923). He has stated that spasm "primitif" is nearly always due to trouble in the act of swallowing, since œsophageal peristalsis is *only* produced by deglutition and *not* by stimulation of the pharynx alone. In his opinion this type of spasm usually occurs in nervous females aged 18–30, and never below the upper third of the œsophagus. This subdivision should not include those cases in which a large, ill-masticated and hurriedly swallowed bolus gives rise to a brief œsophageal spasm, as this is not a disorder of deglutition, but rather that the mass has acted as a temporarily impacted foreign body.

Organic disease of the central or peripheral nervous system is a probable cause of œsophageal spasm. It may occur in nervous disorders such as tabes, bulbar palsy, exophthalmic goitre, and in organic or toxic lesions of the œsophageal nerves. Mosher (1933, 1934) has shown that in acute and chronic general or abdominal infections and also in general degenerative conditions lymphatic permeation and fibrosis may occur in the lower part of the œsophagus, and Rake (1930) and other observers have demonstrated atrophy of the œsophageal nerve ganglia in cases of achalasia. Simple non-sphincteric spasm associated with achalasia has been reported by Forbes (1926) and Teschendorf (1928); and Barsony and Polgar (1927) have watched the incidence of mega-œsophagus in patients who previously exhibited functional diverticula. It is not difficult from the findings of the above observers to formulate a theory that the vagal nerve-endings may be irritated by toxic or degenerative products giving rise to spasm; they then recover or atrophic changes supervene leading to achalasia and mega-œsophagus. One case of simple non-sphincteric spasm due to an organic central nervous lesion occurred in the present series:—

CASE 3.—A male aged 8 months, suffering from primary amentia, was admitted to hospital with a history of attacks of screaming on and off for four months and regurgitation of feeds during the preceding two days. General clinical examination was negative. Radiography showed a complete hold-up of the test-paste in the œsophagus at the level of the 6th dorsal vertebra. Œsophagoscopy revealed no abnormality of the œsophagus save that the mucous membrane was redder than normal. The child died in spite of feeding by means of a stomach-tube. Permission for an autopsy was not obtained.

Reflex stimulation from lesions of the thoracic and abdominal viscera has been regarded as a cause of simple non-sphincteric spasm by numerous observers. The experimental results of Carlson and his co-workers (1922) have been mentioned above. Moersch and Camp (1934) record notes of a man who suffered from simple spasm for nine years; he was found to be suffering from a duodenal ulcer and the spasm was cured by performance of gastro-enterostomy. Teschendorf (1928)

recounts the findings of several writers who have seen simple spasm of the œsophagus apparently caused by reflex stimulation from carcinoma of the stomach, simple ulcer of the stomach and duodenum, disease of the gall-bladder, movable kidney, hernia, and lesions of the uterus, lung, mediastinum, and aorta. Three cases of simple non-sphincteric œsophageal spasm associated with gastro-intestinal disease occurred in the present series :—

CASE 4.—A female aged 45 gave in 1933 a history of four years' intermittent difficulty and pain on swallowing. Radiography, œsophagoscopy, and biopsy showed a peptic ulcer of the œsophagus 13 in. from the incisor teeth. A few weeks later œsophagoscopy was repeated and the ulcer was then found to be healed by scar tissue. Since that date the patient has had attacks of complete œsophageal obstruction lasting two or three days and recurring three or four times a year, although repeated œsophagoscopy has been negative in regard to any intrinsic lesion. It has been very difficult to persuade her to come to hospital during an attack of dysphagia. It was possible, however, to radiograph her during the most recent attack and the film, which will not reproduce, showed diffuse tetanic spasm of the lower third of the œsophagus. This patient is known to be suffering from a duodenal ulcer, and the frequency of the spasmodic attacks has been lessened by the administration of large doses of alkalis.

CASE 5.—A male aged 52 gave a history of four years' chronic gastritis and was found to have in addition complete achlorhydria and a microcytic anæmia. Routine radiography showed a simple œsophageal spasm (Fig. 6). Unfortunately the patient was not examined with the œsophagoscope, but the subsequent disappearance of his symptoms following treatment and lack of recurrence over a long period is proof of the correctness of the diagnosis.

CASE 6.—A male aged 40, suffering from a duodenal ulcer, was admitted to hospital under the care of Mr. J. T. Morrison, by whose kindness we examined the case. He complained of dysphagia and occasional pain in his left shoulder on and off for 12 months. Radiography showed a "narrowing of distal third of œsophagus with dilatation above. ? Growth involving lower third of œsophagus." By œsophagoscopy no intrinsic lesion was found, but spasm of the lower part of the œsophagus was observed. He has been free from dysphagia since, but nearly 5 years later he was readmitted for another complaint and radiograms showed "some dilatation of the lower half of the œsophagus without any evidence of obstruction."

Other cases.—There is a residue of cases in which none of the above factors is evident, but possibly this may be due to an incomplete clinical examination. The two following patients both exhibited simple spasm of the œsophagus without any other discernible lesion, but in view of their ages there are many possibilities :—

CASE 7.—A male aged 79 stated that he had been unable to swallow even fluids for two days. He gave a history of two similar attacks of dysphagia—15 years and 10 years previously. A radiogram by Dr. P. H. Whitaker showed a complete smooth rounded hold-up of test-paste in the lower third of the œsophagus (Fig. 7). Œsophagoscopy revealed no intrinsic lesion. He swallowed comfortably two days later, and a further radiogram demonstrated a normal passage of opaque meal to the stomach.

CASE 8.—A female aged 77 was examined by the courtesy of Mr. C. A. Wells. She complained of attacks of substernal pain which were relieved by vomiting mucus on and off for 7 years. She had not lost weight and her general health was good. Five weeks before examination she had vomited blood on four occasions. General clinical examination was negative. Radiography of the œsophagus by Dr. Whitaker showed a pouch-like appearance in its lower third. This was shown in a series of radiograms (Fig. 8). A few days later she was admitted to hospital, when X ray examination showed no abnormality of the œsophagus and œsophagoscopy was negative. The patient has continued to suffer from attacks of pain and regurgitation at fortnightly intervals without any symptoms in the intervening periods.

SYMPTOMS AND SIGNS

Simple non-sphincteric spasm may give rise to no symptoms whatever and it may be discovered accidentally as in Case 5 above. More commonly intermittent dysphagia and pain on swallowing are outstanding features, and the pain varies in character from a dull substernal ache to severe shooting paroxysms, which occasionally occur spontaneously and waken the patient at night—in two cases reported by Moersch and Camp (1934) the pain was so severe that a diagnosis of angina had previously been made. In the present series the pain complained of was of the dull aching variety. These symptoms may be accompanied by a feeling of anxiety and sometimes by palpitation and dyspnœa. Barsony and Polgar (1927) state that functional diverticula may occur without symptoms and that patients who do experience pain and dysphagia have in addition some dilatation of the œsophagus. During the acute phase swallowed material is regurgitated, and regurgitation is the predominant symptom of spasm in children.

FIG. 8 (Case 8).—Solitary functional diverticulum of the lower œsophagus.

RADIOLOGY

The routine examination of the œsophagus is made with the patient standing in the left posterior oblique position—that is in a semi-lateral position with the left shoulder resting against the fluorescent screen—so that a clear space can be seen between the cardiac and aortic shadows anteriorly and that of the vertebral column posteriorly. The head is turned slightly towards the left shoulder and the chin raised to obtain a clear view of the pharynx. The patient is given a spoonful of opaque food of the consistency of very thick cream which is retained in the mouth until directions are given to swallow and the passage of the opaque bolus is then watched through the pharynx and œsophagus into the stomach. If no abnormality is detected the patient is questioned as to the exact character of the food which gives rise to dysphagia, and the consistency of the opaque food should be altered or crumbs of toasted bread added and the examination repeated: for as Barclay (1931) has pointed out "at one examination the opaque

food allays the irritation and no obstruction is observed, at the next a hard particle may set up the irritation and produce spasm." Radiograms are taken immediately after the screen examination and also with the patient standing in the right posterior oblique and anterior positions, as an abnormality may be demonstrated more clearly in either of the latter positions. When spasm is demonstrated it is advisable to repeat the examination later in the day, on the following day, or even at a still later date.

Many of the radiological features of simple non-sphincteric spasm have been mentioned in the text of this article but the following additional points may be noted:—

(1) Spasm is best observed radioscopically because of its changing appearance.

(2) In diffuse and localised spasm the area above the hold-up is everywhere smooth.

(3) The shadow of the paste above a localised spasm has usually a rounded end as in Fig. 7, or occasionally an "awl-shaped" end as in Fig. 5.

(4) With the patient supine and the hips raised it is possible in some cases to fill the portion of the œsophagus below the spasm with opaque material.

(5) Atony of the œsophagus may be associated with spasm. In Fig. 7 an enlarged œsophageal shadow is shown which is due to atony and not to pressure dilatation, as the spasm had been present only for two days and the œsophagus showed normal radiological dimensions when the spasm had resolved, whereas Fig. 5 shows no enlargement of the œsophageal shadow although the spasm had persisted for 3¾ years.

(6) At other times there is a definite increase of tonus of the muscles, particularly in cases of diffuse spasm when the entire œsophageal shadow may appear as a narrow ribbon between the actual attacks.

TREATMENT

In many patients simple non-sphincteric spasm resolves spontaneously, whilst in others it persists in spite of active treatment, and a consideration of the many presumptive causes demonstrates the impossibility of generalisation in regard to treatment and affords an explanation of its failure in numerous cases.

All of the possible causative factors must be sought for in each patient, and if found the appropriate psychological, therapeutic, or surgical corrective measures can be adopted. The success of this approach to treatment is illustrated by the patient of Moersch and Camp (1934), who was cured after nine years suffering by gastro-enterostomy, Case 1 above in whom reassurance brought about resolution of the spasm, and Case 4, who is improving with massive doses of alkalis.

On the other hand a study of the case-notes recorded above shows that symptomatic treatment alone is unsatisfactory—for instance the mere passage of an œsophagoscope or even actual dilatation will not bring about relief of spasm as it will do in the sphincteric regions. This fact also has been mentioned by Moersch and Camp (1934) and is illustrated by Case 2 above. As regards drugs, sedatives and antispasmodics do not appear to be of great assistance. Teschendorf (1928) advises large doses of atropine pushed almost to the limit of safety. Apomorphine has been given by Boehm (1921), and Lepametier and Dermas (1926) report resolution of symptoms after the administration of Sedobrol.

SUMMARY

Spasm arising in that portion of the œsophagus between the cricopharyngeus and the cardiac sphincter without any intrinsic œsophageal lesion is described as simple non-sphincteric spasm of the œsophagus.

The diagnosis of this is a dangerous one without the most careful investigation, as spasm of the œsophagus is common and may mask a grave lesion.

Simple non-sphincteric spasm may be localised or diffuse and includes the so-called functional diverticula; and it may be transient, intermittent, or persistent in character.

The radiological appearances are typical, and as a rule œsophagoscopy is negative.

It is a neurogenic manifestation and is often associated with other nervous manifestations such as general atony or increased tonus of the œsophageal muscles. Occasionally it may be followed by achalasia or mega-œsophagus.

This type of spasm appears to be secondary to disease or an altered state of other organs, and if it does not resolve spontaneously satisfactory relief can only be obtained by treating the primary lesion.

In addition to the acknowledgments made in the text our thanks are due to Dr. R. Steel and Dr. Swanson Hawks for the radiological reports in Cases 2 and 5 respectively, and to Dr. T. J. O'Donnell for the after-history of Case 8.

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URINARY SUPPRESSION FOLLOWING BLOOD TRANSFUSION

WITH REPORT ON A CASE PROBABLY DUE TO OVER-HEATING THE BLOOD

BY S. L. BAKER, M.Sc. Manch., Ph.D. Lond., M.R.C.S. Eng.

PROCTER PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF MANCHESTER

DEATH following and attributable to blood transfusion may occur immediately—i.e., within a few minutes or hours—or after an interval of several or many days. The causes of the rapid deaths usually remain doubtful and are difficult to investigate and to separate from the primary condition for which the transfusion was performed.

The delayed deaths are the result of complete or partial suppression of urine and examination of the kidneys shows that the tubules are plugged by blood pigment in the form of brownish granules and

masses; it is generally agreed that this condition is associated with an intravascular hæmolysis of the donor's corpuscles due in nearly all cases to incompatibility between bloods of the donor and recipient. Blood-grouping has greatly reduced, though not entirely eliminated, the chances of such incompatible transfusions.

In most cases in which the donor's and recipient's bloods have been re-examined after the occurrence of a hæmolytic reaction they have been found to be incompatible. DeGowin and Baldridge (1934), however, report two cases of death with suppression of urine in which a re-test of the donor's and recipient's bloods showed no evidence of incompatibility; in one of these hæmoglobinuria and the development of a definite jaundice left no doubt that intravascular hæmolysis had occurred. Two cases out of seven reported by Goldring and Graef (1936) showed no evidence of incompatibility of the bloods on re-checking but presented undoubted evidence of hæmolysis of the transfused corpuscles. In the first two of these cases citrated blood was used, in the last two the transfusion was direct.

In cases where the transfusion is not direct one has to consider the possibility of some form of mishandling which would damage the red cells and either hæmolyse them or render them liable to hæmolysis in the recipient's circulation. Facey (1937) discussing reactions after blood transfusion stresses the possibility of faulty technique, particularly in the case of inexperienced operators, and mentions overheating as one of the errors. I have recently had sent to me sections of the kidney and an account of a case in which it appears probable that overheating was responsible for the hæmolysis of the transfused blood.

A middle-aged woman was transfused for uterine hæmorrhage. The donor was Group IV and his blood was matched against the recipient's and showed no incompatibility; 800 c.cm. of citrated blood was used and this had been kept standing for nearly two hours in a receptacle with a water jacket the temperature of which was about 130° F. Within half an hour after transfusion catheterisation produced 25 c.cm. of dark brown urine containing spherules of pigment and giving a strong Kastle-Meyer reaction for iron-containing hæmoglobin derivatives. Spectroscopically it showed the bands of methæmoglobin. The pigment gradually disappeared from the urine during the next two or three days, but a nearly complete suppression of urine (2–3 oz. daily) had developed and the blood-urea steadily rose reaching 540 mg. per 100 c.cm. on the twelfth day after transfusion. The patient meanwhile became more drowsy with occasional vomiting but no jaundice and died on the fourteenth day after transfusion.

Post mortem the kidneys (weighing 200 g. each) showed a "deep purple red colour" of the outer part of the cortex and a "very dark purple" medulla with "streaks of deeper colour along the lines of the collecting tubules." The frozen section received proved not sufficiently good for fine details, but the most obvious lesion was a large amount of dark brown pigment in the lower convoluted and collecting tubules. The only other abnormality was œdema of the lower lobes of both lungs.

There seems no rational reason for heating blood for transfusion purposes above room temperature. As far as concerns the preservation of the blood, this undergoes least change at low temperatures (5° C.). Blood kept outside the body at body heat (37° C.) deteriorates more rapidly than cool blood both as regards the condition of the red cells and as regards the various demonstrable antibodies in the plasma. As far as the cooling effect on the patient is concerned in rapid transfusion the blood is still warm from the donor, and in slow transfusion, unless special apparatus is used to heat the blood at a point close to the needle, it cools down to room temperature by the time it reaches the patient's vein. On making inquiries at Manchester Royal Infirmary I find that large numbers of slow transfusions have been given, with complete success, without any attempt to keep the blood warm. If, for any reason, it is necessary to keep the blood for any length of time before transfusing, it is certainly undesirable to keep it warm during this period.

Cause of Suppression of Urine

Collections of brown granular pigment in the renal tubules are characteristic of suppression of urine following blood transfusion but they are also found in cases of intravascular hæmolysis due to other causes, particularly in blackwater fever where death from suppression of urine is not uncommon.

Yorke and Nauss (1911) while investigating the pathogenesis of blackwater fever produced deposits of brown granular pigment in the renal tubules of rabbits by intravenous injections of solutions of hæmoglobin. By this means they succeeded in producing suppression of urine in several animals, but found that this result could only be achieved if the animals were kept on a dry diet free from green food. Rabbits kept on an ordinary diet with green vegetables excreted the hæmoglobin in an unchanged condition in the urine; no pigment was deposited in the tubules and no urinary suppression resulted. It appeared that the formation of the granular pigment in the renal tubules was related in some way to the condition of the urine, but the precise factors necessary for its deposition were first worked out by Baker and Dodds (1925).

We repeated and confirmed the findings of Yorke and Nauss and further concluded that if hæmoglobin is injected intravenously into rabbits it is excreted by the kidneys and reaches the renal tubules where one of two events may occur. (*a*) If the reaction of the urine be on the alkaline side of *p*H6 the hæmoglobin will be excreted unchanged and appear in the urine as oxyhæmoglobin; the urine will be red and the kidney will take no harm. (*b*) If the reaction of the urine is as acid as *p*H6 and if there is sufficient concentration of sodium chloride (over 1 per cent.) the hæmoglobin will be precipitated in the tubules as a brown granular pigment. The urine will then be brownish, will show a brown precipitate, and will contain casts of the urinary tubules composed of similar brown granules massed together.

The kidneys of the rabbits secreting brown urine showed brown granular debris filling many of the renal tubules, chiefly the collecting tubules. A certain proportion of these rabbits developed suppression of urine and became ill, and showed an increase of blood-urea (up to 300 mg. per 100 c.cm.). Rabbits secreting the hæmoglobin in an unchanged state as oxyhæmoglobin never showed any evidence of renal damage.

On the strength of these animal and chemical studies and by the study of two human cases of suppression of urine following transfusion we concluded that the urinary suppression resulted from hæmoglobinuria only when the urine was acid, and we pointed out that the timely administration of alkalis, preferable intravenously, should prevent this complication.

Both the cases we reported occurred, unfortunately, before we had worked out the problem and we have never had the opportunity of observing the effect of alkalinisation on a human subject. Since our paper was published in 1925 many cases of post-transfusion suppression have been reported, but in only very few of these can I find that alkalinisation has been

attempted and even in these it has obviously been tried much too late.

Several writers on the subject have evidently failed to grasp the significance of our findings which have, unfortunately, not been generally applied to the prevention and treatment of this condition. Their significance has, however, been realised by two recent groups of workers, Goldring and Graef (1936) and DeGowin, Osterhagen, and Andersch (1937). The latter have repeated our experiments using dogs instead of rabbits and have confirmed the fact that animals secreting an alkaline urine suffer no renal damage while those secreting acid urine are liable to die from renal insufficiency produced by obstruction of the kidney tubules by pigment derived from hæmoglobin. They conclude their paper with the remark: "These studies substantially confirm the experiments performed on rabbits by Baker and Dodds." It is satisfactory to find that our conclusions, based largely on studies of the rabbit, which normally secretes an alkaline urine, are equally applicable to the dog, which, like man, normally secrets acid urine.

ALTERNATIVE EXPLANATIONS

Before considering in more detail the mechanism of intrarenal obstruction it will be as well to discuss briefly some alternative explanations of the renal failure.

Bordley (1931) from a consideration of 17 cases, 14 of which were collected from the literature, concludes that there are four possible explanations of the renal damage:—

(1) Mechanical blockage of the tubules by the granular debris.

(2) The kidneys are sensitive to certain bodies contained in the injected blood and the functional decline results from a local reaction which is of the nature of an anaphylactic shock.

(3) The immediate transfusion reaction brings about a metabolic disturbance that affects renal function.

(4) Damage to the renal tissue by toxic substances set free in the blood at the time of the transfusion.

The last three of these possibilities cover a wide and indefinite field and the problem cannot profitably be discussed under these headings. It will be more to the point to consider first what part of the transfused blood is responsible for the renal damage.

(1) *Is it the plasma or the corpuscles?*—The answer to this is given by a case reported by DeGowin and Baldridge (1934) where hæmoglobinuria, jaundice, and a fatal suppression of urine followed transfusion with washed red corpuscles. This case and the experiments of Yorke and Nauss (1911) and Baker and Dodds (1925), in which suppression of urine in rabbits was produced by lysed washed red cells, prove definitely that the corpuscles are responsible for the damage.

(2) *What part of the corpuscles is responsible?*—The corpuscles can be separated into the hæmoglobin and the stroma and in our experiments on rabbits it was found necessary to remove the stroma by filtration in order to avoid capillary emboli and thrombosis in the lungs, which caused immediate death in these animals when whole lysed corpuscles were injected intravenously. In our experiments therefore urinary suppression and nitrogen retention was produced by the hæmoglobin fraction alone. We can say therefore that hæmoglobin liberated by intravascular hæmolysis of the transfused corpuscles is responsible for the renal damage.

(3) *Is hæmoglobin per se toxic to the kidneys* or is the effect dependent from the formation of the granular precipitate in the tubules?—DeGowin and Baldridge (1934) quoting the experiments of Mason and Mann (1931) and Hesse and Filatov (1933) who showed that hæmoglobin had a vasoconstrictor effect on the kidney, say: "It is as yet not possible to say whether the vasoconstrictor effect or the blocking and destruction of tubular epithelium is the more important." It is clear that the idea that the suppression of urine is due to a vasoconstriction produced by hæmoglobin would not explain the fact that, in rabbits and dogs secreting an alkaline urine, hæmoglobin produces no signs of serious renal damage as judged by microscopic examination of the kidney and by the absence of nitrogen retention. Moreover of the 7 cases of post-transfusion suppression reported by Goldring and Graef (1936) 4 (Cases 2, 3, 5, and 7) developed a complete or partial suppression which lasted from seven to sixteen days, but was then followed by a diuresis and gradual recovery. Case 2 showed only a short period of hæmoglobinuria which had disappeared entirely by the fourth day following the transfusion, yet the non-protein nitrogen of the blood continued to rise during a further seven days, after which diuresis set in and recovery took place. This would be a peculiarly persistent vasoconstrictor effect; especially in view of the fact that Mason and Mann describe the effect of hæmoglobin as "a definite, sharp, *transient* decrease in volume of the kidney." DeGowin, Osterhagen, and Andersch, in their (1937) paper quoted above, bring further evidence against the vasoconstriction hypothesis of Hesse and his co-workers.

The outstanding fact which cannot be explained by any of the suggested alternatives but can be explained on our hypothesis is that under certain conditions a gross hæmoglobinuria may occur without any evidence of renal damage, whereas under other conditions the secretion of urine is suppressed.

Hæmoglobinuria without appreciable failure in renal function occurs in man in (1) paroxysmal hæmoglobinuria; (2) in blackwater fever, particularly in those cases treated with alkalis; and (3) after the experimental injections of hæmoglobin carried out by Sellards and Minot (1916). In animals Bayliss (1920) found that injection hæmolysed blood was innocuous to the cat and dog, and as already stated, rabbits with normally alkaline urine are not adversely affected by transfusion with filtered hæmoglobin solutions. On the other hand, we have the cases of post-transfusion and blackwater-fever suppression in man and the experimentally produced suppression in rabbits and in dogs secreting an acid urine.

THE AUTHOR'S VIEW

The following summarises what I believe to be the correct explanation of these apparently contradictory findings.

The urine is excreted from the glomeruli as a dilute transudate the reaction of which is in the region of that of the blood plasma. During its passage through the renal tubules it becomes more concentrated either by absorption of water or by the addition of salts. In hæmoglobinuria the hæmoglobin must either pass out in the glomerular transudate or it must be excreted by the tubules; in either case it will arrive in the lower convoluted tubules where the urine is becoming more concentrated. If the concentrated urine is sufficiently acid and has a sufficient salt content the hæmoglobin undergoes a change, first to methæmoglobin and then to hæmatin, the latter forming a brown granular precipitate in the renal tubules. If the urine does not become sufficiently acid and

concentrated the hæmoglobin undergoes no change but is excreted in solution as oxyhæmoglobin; in this event the kidney suffers no ill effects.

With a concentrated urine which precipitates the hæmoglobin there are three possibilities depending on the amount of hæmoglobin excreted and on the degree of concentration of the urine.

(1) With a considerable hæmoglobin excretion and a very concentrated urine there is a massive precipitate of hæmatin in the renal tubules; this packs down into masses which cause permanent blockage and death from complete or nearly complete suppression of urine.

(2) With either a small amount of hæmoglobin or a rather less concentrated urine the precipitate is less copious and produces a similar but less massive obstruction. With the gradual extrusion of the hæmatin casts, possibly encouraged by a diuresis produced by the raised blood-urea, the obstruction is relieved and the patient recovers.

(3) With still less hæmoglobin or only a moderately concentrated urine a light precipitate of hæmatin forms in the renal tubules; this is easily passed out and appears in the urine as lightly packed granular casts which are associated with a fair amount of brown granular precipitate formed in the bladder. No urinary suppression or gross functional damage to the kidney results in these circumstances. This condition was evidently present in the case of paroxysmal hæmoglobinuria whose urine we had the opportunity of examining (Baker and Dodds, 1925).

Recovery from Intrarenal Obstruction

In a series of 17 cases of post-transfusion suppression reported by Bordley (1931) there were 5 recoveries and in a recent series of 7 reported by Goldring and Graef (1936) 4 recovered. The mechanism of this recovery presents an interesting problem.

The sequence of events is usually as follows. After a period of partial suppression and steadily rising azotæmia with uræmic symptoms, lasting from seven to sixteen days, the excretion of urine begins to improve and in the course of four to six days mounts steadily from an almost complete suppression to an output of 3–4 litres a day. With the establishment of this diuresis there starts a steady fall in the non-protein nitrogen of the blood and the patient makes a rapid recovery. Recovery may take place after a high grade of azotæmia has been reached; in Case 5 of the series reported by Goldring and Graef recovery occurred after sixteen days' partial suppression with an azotæmia reaching 520 mg. non-protein nitrogen per 100 c.cm. The prolonged obstruction produced no permanent impairment of renal function in this case.

We noted a very similar recovery of renal function in our experiments on rabbits and made the following remark (Baker and Dodds 1925, p. 254).

"Even when the urine is made acid it is not an easy matter permanently to obstruct the kidney of a rabbit by injections of hæmoglobin. Such an animal may recover after several 20 c.c. injections of strong hæmoglobin solution. There is no doubt that such injections lead to a temporary blockage of the renal tubules. It can be shown, however, that the kidney is capable of recovering its function after such an obstruction."

At the time of these experiments we were not aware that a similar process of recovery could take place in man and were surprised at the powers of recovery of our rabbits.

The evidence that recovery is dependent on the extrusion of the hæmatin casts from the renal tubules is based on the examination of the urine of rabbits recovering from obstruction; our remarks on this were as follows:—

"When obstruction has occurred in a rabbit with an acid urine an examination of samples of urine passed during the period of recovery shows numerous darkly coloured compact casts which form a slight sediment in an otherwise perfectly clear urine. These casts undoubtedly correspond to the more compact masses of debris which are seen in sections blocking the straight tubules; their extrusion no doubt frees the kidney to a considerable extent."

I have never had the opportunity of examining the urine of a patient who recovered from post-transfusion suppression, nor does there appear to be any record of studies of the urinary deposit in such a case.

Nature of Granular Precipitate in Renal Tubules

A detailed chemical study of the precipitate in the renal tubules and in the urine has, as far as I am aware, never been made. It would obviously be very difficult to investigate in any detail the pigment in the tubules; it has, however, been shown that it gives a positive benzidine reaction (Goldring and Graef 1936) and that it does not give the Prussian-blue reaction for inorganic iron. This proves that it is either hæmoglobin or one of its degradation products containing organically combined iron. Its brown colour and granular form tells us that it is not unchanged hæmoglobin. As regards the pigment in the urine, part of which is derived from casts extruded from the kidney, this consists of at least two substances for, if the urine is allowed to settle, the supernatant fluid gives the spectrum of methæmoglobin while the granular precipitate gives the reactions for hæmatin (Baker and Dodds 1925, p. 258). Hæmatin, like the pigment in the renal tubules, gives the benzidine but not the Prussian-blue reaction. These two pigments (methæmoglobin and hæmatin) were produced in vitro by adding hæmoglobin to acid urine.

The exact chemical composition of the precipitate is, however, of purely academic interest; what is of practical importance is the mechanism of its formation, and this is set forth in detail in our paper. An important point, which explains the different grades of renal obstruction (ranging from complete to nil), is the variation in the amount of precipitation with changes in the *p*H and salt content of the urine. With a very concentrated urine the precipitation is complete and relatively rapid and little if any methæmoglobin remains in solution; with less concentration its precipitation is slower and partial. With a fairly rapid and complete precipitation, which would only occur with a very concentrated urine, it is quite possible that no soluble pigment would escape from the kidney even though some urine was excreted. This probably explains the exceptional cases where hæmoglobinuria was definitely stated to be absent, although pigment was found in the renal tubules post mortem. Pigment casts would almost certainly have been found in the urine in these cases had they been looked for.

Although hæmolytic jaundice usually occurs, it is not always present; its absence, even in carefully recorded cases, cannot be taken to negative an intravascular hæmolysis. This point is illustrated by the very well-recorded series of 7 cases collected by Goldring and Graef (1936). All these showed hæmoglobinuria and all developed jaundice except Case 5; but there must have been hæmoglobinæmia in this case to produce the hæmoglobinuria. Hæmoglobinuria without jaundice was also present in the case I report in this paper.

Changes in the Kidneys

The naked-eye appearance of the kidneys is variable and not very distinctive. They are usually enlarged,

sometimes weighing up to about 8 oz. each; the cortex is usually swollen and may show the pale opaque appearance of marked albuminous degeneration or, on the other hand, it may be congested. The medulla shows a dark red-brown striated appearance produced in part by congestion of the vasa recta and in part by deposits of brown pigment in the medullary tubules. Microscopically the characteristic change is a deposit of granular brown pigment in the tubules; this is most obvious in the collecting tubules, but may in some cases extend as high as the second convoluted tubules (as in our Case 1, Baker and Dodds 1925). This pigment is in the form of granules of size varying from that of a micrococcus up to globules and masses considerably larger than red blood-cells. In unstained sections it is brown in colour, but it appears red or brownish-red with eosin staining and, as noted above, it gives a benzidine but not a Prussian-blue reaction. The pigment is mixed with a variable amount of cell debris mainly derived from the tubular epithelium and tends to form compact casts in the lower parts of the tubular systems.

The other changes in the kidneys consist of (*a*) albuminous degeneration of the tubular epithelium, and (*b*) dilatation of the tubules and of Bowman's capsules. Œdema and infiltration of the interstitial tissues with chronic inflammatory cells have been described in several cases. The enlargement of the kidneys appears to be produced by albuminous degeneration and dilatation of the tubules and possibly to some extent by œdema and cellular infiltration of the interstitial tissues. The albuminous degeneration may be marked but there is no tubular necrosis nor are appreciable fatty changes present. The amount of dilatation of the tubules and of Bowman's capsules is very variable and possibly depends on the extent of the precipitate within them (and the point at which obstruction occurs). In our first case where the pigment precipitate extended as high as the second convoluted tubules there was a general dilatation of all the tubules and of Bowman's capsules, and I have sections of a kidney from a case of blackwater fever with urinary suppression which shows an almost identical condition. In Witts's case (1929), in which a detailed description of the microscopic appearances of the kidneys was given by Turnbull, all the tubules were dilated, but the capsule of Bowman was "usually only slightly dilated." The deposit of pigment did not extend as high as the convoluted tubules in this case. In our second case there was no obvious dilatation of the tubules or of Bowman's capsules and the pigment was confined to the lower part of the tubular system.

Interstitial œdema and perivascular and intertubular infiltration with chronic inflammatory cells, which were noted in Witts's case and in several others, if directly related to the renal obstruction, appear to be late results; neither of these features were present in our first case which died early on the fourth day following transfusion.

We may therefore summarise the more important microscopic findings as follows:—

(1) A precipitate of hæmatin in the lower parts of the tubular systems extending, in some cases, into the second convoluted tubules.

(2) Albuminous degeneration of the tubular epithelium without necrotic or fatty changes but with desquamation of some of the cells into the tubular lumina.

(3) A variable degree of general dilatation of the tubular systems which may be marked and may also involve Bowman's capsules.

(4) No signs of inflammatory or other significant lesions in the glomeruli.

(5) As a late result a varying amount of œdema and, possibly, chronic inflammatory infiltration of the perivascular and intertubular connective tissues.

Prevention and Treatment of Post-transfusion Suppression

Since hæmoglobin is precipitated only when the urine is acid intrarenal obstruction will not occur in a patient whose urine is neutral or alkaline during the period of hæmoglobinuria following an incompatible blood transfusion. If, however, a precipitate has formed in the renal tubules in a patient with an acid urine it is doubtful whether alkalinisation will effect a cure. Precipitates of hæmatin are not very soluble in alkaline urine (*p*H 7·5) but they are more soluble in this than in acid urine. When the precipitate is sufficiently massive to produce complete suppression one can, presumably, expect little from alkalinisation; but in most cases the suppression is not complete and an alkaline urine should help by dissolving some of the precipitate in the tubules. Since, as we have seen, a fair proportion of cases have recovered from the obstruction spontaneously, probably by the extrusion of the obstructing casts, a relatively slight solution of some of the pigment may well turn the scale in favour of recovery. Early recognition and prompt treatment of the condition by alkalinisation appears to offer the best prospect of recovery. The treatment of blackwater fever by alkalis has been practised for many years.

Cases must occur in which an incompatible transfusion results in hæmoglobinuria, but, because the patient's urine is not very acid, there is no suppression of urine. I have heard of one such case, but the majority have evidently not been considered worth recording.

SUMMARY

1. A case is described in which urinary suppression followed transfusion with overheated blood.

2. The mechanism of post-transfusion suppression is discussed in the light of older and more recent work and it is concluded that the view put forward by Baker and Dodds (1925) furnishes the only adequate explanation of the observed facts.

3. According to this view the urinary suppression results from an intrarenal obstruction due to excretion of hæmoglobin with a urine of high acidity and salt concentration. Under these conditions the excreted hæmoglobin is converted into a granular deposit of hæmatin which obstructs the renal tubules. Hæmoglobin per se is innocuous to the kidney.

4. The prevention and treatment of the condition is briefly considered.

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HOSPITAL'S CHANGE OF NAME.—The City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, has been renamed the London Chest Hospital.

TRANSPLANTATION OF THE CORNEA FROM PRESERVED CADAVERS' EYES

By V. P. Filatov, M.D.
of Odessa, U.S.S.R.

Till recently the chief source of material for the transplantation of the cornea in man consisted of eyes enucleated from living people owing to some disease of the eye or of the orbit. The possibility of obtaining a permanent, transparent union of the corneal graft from the living eye has been proved beyond any doubt; many cases have been recorded where the transparency of the cornea has been observed for nine months or more—notably 31 cases from Elschnig's clinic (Ascher 1919, 1922, Liebsch 1930, Stanka 1927), 16 from my own observation (Filatov 1935b), and the cases of Zirm (1907), Plange (1912), Löhlein (1912), Tudor Thomas (1933, 1934), Castroviejo (1933, 1934, 1935), Vasiutinsky (1935), Belajev (1924), and other authors. About 70 cases are on record of successful transplantation of the cornea from living eyes. Almost all of these successes have been obtained with the method of partial penetrating transplantation; in a few of the cases the lamellar partial transplantation was made; while one only fairly successful case has been recorded (Schimanovsky 1913) of complete transplantation.

All my cases were under observation for not less than a year, the only exception being a patient who died seven and a half months after the operation. As regards more remote results of transplantation from the living eye a number of cases have been recorded by Elschnig, as well as by myself, which have been under observation for several years. Fig. 1 shows eyes whose transplants were found to be transparent after varying periods.

GRAFTS FROM THE LIVING

Case A.—Complete leukoma, developed after recurring scrofulous keratitis. In the leukoma were some remnants of the semi-transparent corneal tissue. Vision before operation (Oct. 18th, 1923) was equivalent to perception of light; vision after operation was 3/60 on aphakic correction. This vision remained unchanged till the patient died 6 years later (Filatov 1925).

Case B.—Dense opacity after parenchymatous keratitis. Vision before operation (Dec. 23rd, 1930) 0·025. The transplant retained a fine transparency during the time of observation (5½ years). Vision after the operation was 0·7 till May, 1934, when it became and remained 0·4. Fundus oculi clearly visible (Filatov and Velter 1932) (Fig. 1).

Case C.—Dense opacity of the central part of the cornea of the right eye and less dense opacity on its periphery; both developed after parenchymatous keratitis. Vision before the operation (Feb. 2nd, 1932) was 3/60. The transplant is now, 4 years and 7 months after the operation, still fully transparent. Vision was 0·5 (Filatov and Velter 1934) (Fig. 1).

Case D.—Opacity developed in the left eye after parenchymatous keratitis. Vision before the operation (March 10th, 1932) was 5/60. The transplant is now, 4½ years after the operation, fully transparent. Vision=0·3 (Filatov and Velter 1934).

Case E.—Leukoma developed after a traumatic ulcer. In the upper third of the cornea a strip of the tissue is transparent. Vision before the operation 1/60; after the operation, performed in December, 1931, by Prof. Zykulenko, vision rose to 0·4. Binocular vision was restored. Length of observation time 4 years 9 months (Zykulenko and Velter 1933) (Fig. 1).

These results illustrate the bright prospects of corneal grafting, and there is now reason to think that the operation may prove to be a practical means of overcoming the blindness and disablement due to leukoma.

NEED FOR NEW SOURCES

The question now arose whether the number of suitable eyes removed from living people would be enough for all the cases in which the transplantation was indicated. For it must be kept in mind that there are six million blind in the world and fifteen millions suffering from diseases of the eye (Samoilov and Braunstein 1935). According to the official census in 1926 there were 234,800 blind people in the Soviet Union (Savvaitov 1932). In at least 43 per cent. of this number blindness is due to leukoma, for to this cause may be put down all cases of blindness from trachoma (20·64 per cent.), from small-pox (10·63 per cent.), from diseases of the cornea (8·43 per cent.), and from blennorrhœa of the newly born (3·45 per cent.); it is also necessary to add some cases of blindness due to trauma. Of this number—about a hundred thousand—a great many cases are not fit for the operation of corneal transplantation owing to various complications, such as glaucoma, atrophy of the eye, staphyloma, symblepharon, and persisting trachoma. Yet the number of cases in which the operation is indicated still amounts to many thousands. The number of candidates for corneal transplantation would be increased even more by those who, though afflicted with leukoma in both eyes, have not been registered as being blind because their vision is above 1/200. Such cases lend themselves particularly well to the operation of corneal transplantation, for these leukomata contain remnants of corneal tissue. Furthermore, since the transplantation of the cornea successfully competes with iridectomy, the number of candidates for the operation may indeed be enormous.

In view of the great success already achieved in the work with corneal transplantation it seemed high time to attempt to find a new source of transparent corneas if the serious difficulty of supply was to be overcome. It was only natural for me first of all to turn my attention to the dead body. For some time cadavers' eyes, from adults as well as from fœtuses, had been employed in a few single cases by several surgeons. Some used corneas immediately or during the first hours after death (Fuchs 1901, Schimanovsky 1913, Magitot 1912, Saveliev 1927). Other surgeons removed the eyes from the stillborn 10–36 hours after death. Only in the case reported by Magitot (1912), however, was a permanently transparent union of the transplant established by fairly long observation. These data were of course far too meagre, and the use of cadavers' material on a large scale, as a substitute for living material, to meet the demands for transplantation had not previously been considered by anybody.

This then was the state of affairs when I studied the problem in 1931. Its solution I based on the remarkable case reported by Morax and Magitot (1912) who obtained a permanently transparent union of the cornea removed from a living person and preserved in the donor's blood at a temperature of minus 6° C. for eight days.

METHOD

From the very beginning of my investigation on the feasibility of transplanting cadavers' cornea I employed corneas taken from cadaver-eyes preserved for many hours before the operation at a relatively

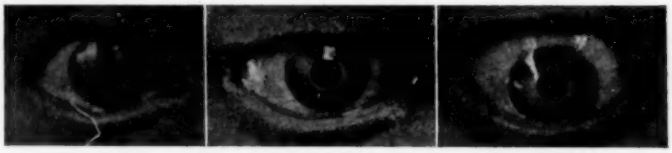
low temperature. The eyes were obtained: (1) from bodies of those who had not died from infectious diseases nor malignant tumours—syphilis was excluded by serological tests before or after death and sometimes also by autopsy; (2) after death from accidents or suicide, brought into the medico-judicial morgue—syphilis was excluded by serological tests, and the absence of acute infections by the anamnesis and sometimes by autopsy.

The enucleated eyes were in some cases placed in a sterile jar with a tight-fitting stopper, cornea upwards; sometimes the jar was filled with the donor's fresh clotted blood while in still other cases the blood was citrated. The jars were kept in an ice-chest at 4°–6° C. On the day of operation the jar containing the eye, surrounded by ice, was brought into the operation room, where it remained for about an hour before the cornea was excised and transplanted. The corneas of eyes preserved in this manner usually appeared to be somewhat dimmed, the epithelium being slightly stippled. The eyes were kept for periods varying from 10–56 hours, while in one case it was six days. Before excising the transplant the cornea was washed with a fresh aqueous solution, brilliant green (1 : 1000).

RESULTS

From 1932 till January, 1936, I have performed 95 operations of the partial penetrating transplantation of corneas prepared in this way (Filatov 1934, 1935a). In nearly all of these cases I used my own operative technique.

I employed either an FM 1 or an FM 3 trephine and covered the transplant with a flap of conjunctiva (Filatov 1934a and b, 1935b and c).



Case B. Case C. Case E.

FIG. 1.—Corneal grafts from the living.

There was not a single case of necrosis of the transplant. The post-operative course was pretty much the same as in transplantation from living eyes.

The following were the results of the 95 operations.

There were 46 cases of non-transparent union and 17 cases of half transparent union. In one of these cases a greyish film has formed on the posterior surface of the transplant.

In 4 cases, in one of which the transplantation was performed after six days' preservation of the eye, the union was transparent, but a connective tissue film had formed in each case on the posterior surface of the transplant.

Lastly, there were 18 cases of transparent union. By this I mean that the details of the anterior chamber could be clearly made out at least through a part of the transplant or that there was a good light reflex through it.

The 18 cases of transparent union, and also those cases of transparent union in which a connective tissue film had formed on the posterior surface of the transplant, must not be referred to the total number of eyes operated on, but only to 49 of them, since in 46 eyes the leukomata were greatly complicated by glaucoma, buphthalmos, applanation, subatrophy of the eye, &c.; in such eyes there is no hope at all of obtaining a transparent union. While the operation is performed in the last resort as a concession to the supplications of the patients, it is necessary to keep separate records for such eyes.

Out of the 18 operations in which transparent union was recorded, 14 cases have been under observation for over nine months, the remaining 4 cases having been followed up for a shorter time. Some of these 18 cases of transparent union are summarised below and illustrated by untouched photographs:—

CASE 1.*—Leukoma due to scrofulous keratitis. Vision before operation: perception of hand movements. Transplantation of cadaver's cornea on March 17th, 1935. The eye had been taken from the cadaver 12 hours after death and subsequently preserved for a further 25 hours at 4°–6° C.

Result.—Vision = 3/60, on eccentric fixation (amblyopia). Fundus oculi clearly visible. Length of observation (Oct. 1st, 1936) 1½ years (Fig. 2).

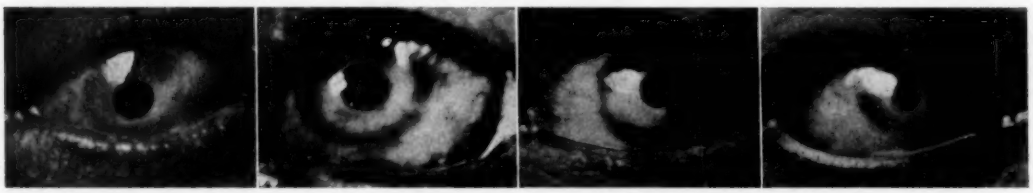
CASE 2.*—Leukoma developed after an ulcer. Vision: perception of hand movements. Transplantation of cadaver's cornea on Dec. 12th, 1935. The eye taken from the cadaver had been preserved for 27 hours.

Result.—Vision = 0·4. Fundus oculi clearly visible. Anterior pole cataract distinctly visible. Length of observation (Nov. 1st, 1936) 10½ months (Fig. 2).

CASE 3.—Leukoma formed after a thermic burn. Vision before the operation: perception of hand movements. Transplantation of cadaver's cornea on Oct. 28th, 1934. The eye had been removed from the cadaver 3 hours after death and subsequently preserved for 27 hours.

Result.—Vision = 0·4. Anterior pole cataract. Fundus oculi clearly visible. Length of observation (Nov. 1st, 1936) 2 years (Fig. 2).

CASE 4.—Aged 12. Leukoma after parenchymatous keratitis. Vision before the operation: able to count fingers held before her face. The eye had been taken from a cadaver 12 hours after death and subsequently preserved for 26 hours.



Case 1. Case 2. Case 3. Case 4.

FIG. 2.—Corneal grafts from cadavers. The eyelids are retracted to display the cornea.

* Cases 1, 2, and 5 were demonstrated at the All-Union Meeting of Ophthalmologists of the U.S.S.R. in June, 1936.

Result.—Vision = 0·1 with a −9 D lens. Fundus oculi distinctly visible. Period of observation (Oct. 1st, 1936) 2½ years (Fig. 2).

CASE 5.*—Leukoma after parenchymatous keratitis. Vision before the operation = 0·02. Transplantation of cadaver's cornea on Oct. 28th, 1935. Eye removed from the cadaver 2 hours after death, preserved a further 28 hours.

Result.—Vision = 0·9. Length of observation (Nov. 1st, 1936) 12 months.

The cases cited above bear witness to the fact that a cornea from a cadaver's eye, preserved at a temperature of 4°–6° C., is perfectly suitable for transplantation. Analysing my material and taking into account the quality of the leukomatous substratum, in which the transplant from the cadaver is placed, I have gained the impression that the results of transplantation from cadavers' eyes are not inferior to those obtained with grafts from living eyes. For a final opinion it is of course still necessary to follow up the more remote results of the operations. On the other hand it may be said that the present results in my series of cases that have been under observation from 1½ to 2½ years, would already seem to justify the expectation that the more remote results will be favourable.

Investigations are being made in my laboratory on the retention of vitality by the cornea under various conditions of preservation. Experiments carried on by Dr. Bazhenova have shown that the cornea of rabbits' eyes may show a good tissue growth when planted in vitro even after ten days' preservation at a temperature of 2° C. In collaboration with Bazhenova I have obtained a tissue culture from dried cornea. Working in my laboratory Velter has shown in rabbits the possibility of transparent union of the cornea taken from eyes, preserved at a temperature of + 2° C. for as long as fifteen days. My pupil, Dr. Pupenko, has brought forth evidence for migration of cells and their formation into clusters in the cornea (and in other tissues) after preservation of the material for eight days at a temperature of 2° C.

CONCLUSIONS

The cornea from eyes of human cadavers, removed some hours after death and preserved at a temperature of 4°–6° C., is suitable for homoplastic transplantation in man, the transplant retaining permanent transparency after union with the substratum.

The new source of material for transplantation opens up great possibilities for further investigations on corneal grafting.

In connexion with the transfusion of preserved cadavers' blood, first applied to dogs by Prof. W. N. Shamov and to man by Prof. Yudin, the successful transplantation of preserved cadavers' corneas is of great interest not only from a clinical but also from a general biological point of view.

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EFFECT OF
CALCIUM AND VITAMINS A AND D ON INCIDENCE OF PREGNANCY TOXÆMIA

BY G. W. THEOBALD, M.D. Camb., M.R.C.P. Lond., F.R.C.S. Edin., F.C.O.G.

THE following experiment, carried out at St. Mary Abbots Hospital,* London, during 1936, was devised to determine whether the mere addition of calcium and vitamins A and D to the dietaries of patients attending the antenatal clinic would have any effect on the incidence of toxæmic symptoms.

Apparently healthy women, not more than twenty-four weeks' pregnant, were divided by the sister into two groups when they first attended at the clinic, no attention being paid to their previous obstetric histories. They were divided at random in the following manner:—

An equal number of blue and white beads were placed in a box. Each woman accepted for the experiment was asked to draw a bead from the box. Those who drew blue beads were placed in Group A while those who drew white beads were placed in Group B. The beads drawn out were placed in a separate container.

The patients in Group A were requested to take daily, for the remainder of their pregnancies, calcium lactate 20 grains, vitamin A (11,000 international units) and naturally occurring vitamin D (450 units); while those in Group B served as controls. The oil containing the vitamins was supplied in capsules, of which four were to be taken every day, while the calcium lactate was distributed in the form of tablets. No advice concerning diet was given to either group of patients.

Each group contained 50 women. In Group A 25, and in Group B 26, were primigravidæ. The symptoms were recorded by independent antenatal officers who had no knowledge as to which patients were receiving the additional substances. All patients developing albuminuria, showing hypertension, or suffering from excessive vomiting, or œdema were admitted into the antenatal ward. Those suffering from insomnia or severe headaches were also advised to go into hospital.

RESULTS

The results obtained are shown in Tables I and II. The symptoms of the patients admitted for albuminuria and hypertension are not included, so that the heading "symptoms" refers to patients

* This obstetric unit is affiliated to the British Postgraduate Medical School, Hammersmith, London.

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not included in the above two categories. A systolic blood pressure of, or exceeding, 140 mm. Hg was considered evidence of hypertension. The numbers

TABLE I

Incidence of Toxic Symptoms in Treated (A) *and Untreated* (B) *Women*

—	Group A (50).		Group B (50).	
	Cases.	Primigravidæ.	Cases.	Primigravidæ.
Albuminuria and hypertension ..	2	1	3	2
Hypertension ..	3	1	8	4
Albuminuria ..	2	2	6	3
Other symptoms ..	6	2	11	4
Totals	13	6	28	13

TABLE II

Analysis of "Other Symptoms"

—	Group A.	Group B.
Hyperemesis	2	4
Œdema	3	3
Headaches	2	5
Cramps	1	3
Insomnia	2	6
Totals	10	21

suffering from "other symptoms" are shown in Table II, most patients complaining of more than one symptom.

COMMENT ON THE FINDINGS

Prof. E. S. Pearson, of the department of statistics at University College, London, has been kind enough to study these figures and has expressed the opinion that the difference in incidence of "complications" between the two groups is very unlikely to have arisen by chance. It is therefore desirable to consider factors, other than the diet, which may have contributed to this difference.

Of the 100 patients, 76 were between twenty and thirty years of age. Of the primigravidæ 4 (2 in each group) were under the age of twenty, each being nineteen years of age. The number of women over thirty was 20, including 2 primigravidæ in each group: 9 of these were in Group A and 11 in Group B. It is thus evident that the ages of the women in the two groups were strictly comparable.

It has already been stated that no regard was paid to the previous obstetric histories of the multigravidæ. There are arguments in favour of confining future experiments to primigravidæ, but it would have been impossible to take previous obstetric histories into consideration unless all the confinements had taken place in comparable institutions. One woman in Group A, admitted for albuminuria and hypertension, had been twice previously confined—on both occasions in St. Mary Abbots Hospital. In her first pregnancy she had suffered from eclampsia, and during her second pregnancy she was admitted for albuminuria and hypertension. As the result of treatment in the ward her urine became protein-free and her blood pressure returned to normal limits before she was delivered of her third child. The previous obstetric histories of many of the patients were unobtainable, but it is significant that the same difference in incidence of "complications" between the two groups is observed among the primigravidæ as among the multigravidæ.

All the patients in the experiment were observed equally often over approximately the same period of time. No woman was included who was not in the position to take the "protective substances" for sixteen weeks before delivery, and no one took them for more than twenty weeks. The social status of all the patients was, so far as could be judged, strictly similar. There was no room for variation in the "standards" adopted by the antenatal officers, for the criteria were well defined. If albumin was found in the urine a catheter specimen was subsequently obtained and tested. No patient was recorded as suffering from albuminuria unless albumin was detected in a catheter specimen. Similarly, no patient was admitted for hypertension unless, after rest, the systolic pressure equalled or exceeded 140 mm. Hg. A symptom, such as headache, was accepted only if it persisted and was severe. Moreover, I myself saw every patient who was admitted to the antenatal ward and confirmed the findings of the antenatal officers.

It therefore seems logical to assume that the difference in the incidence of "complications" between the two groups must, if not due to chance, be attributed to the substances given. This assumption is strengthened by the results of the dietetic treatment of these patients in the antenatal ward. The symptoms cleared up in every case. A slight degree of albuminuria, not exceeding 0·05 per cent., persisted in 3 of the 13 patients admitted for this condition, while the blood pressure returned to the normal in 13 of the 16 patients admitted for hypertension. These results strongly suggest that the other main factor in the prevention of the toxæmias of pregnancy is the vitamin-B complex.

It is somewhat disappointing that, after waiting so long for the opportunity of conducting this experiment, the number of women included should be so small. This is due to the fact that only a small proportion of the patients booked sufficiently early and attended the hospital antenatal clinic throughout their pregnancies. These results, however, point in the same direction as those obtained by Mendenhall and Drake,[1] and are published in the hope that further experiments on a larger scale will be conducted elsewhere. There is no proof that all the patients in Group A took their capsules and tablets regularly, and it might be expedient to incorporate a trace of methylene-blue in each tablet.

Experiments conducted on these lines would show to what degree, if any, the different protective substances are associated with toxæmic symptoms. It is my belief, for instance, that vitamin A is of more importance in preventing senile changes in the placenta, and consequent death of the fœtus, than in preventing toxæmic symptoms. Then, too, experiments conducted in different parts of the country might show that the degree of deficiency of any given protective substance varied from area to area. On the other hand, all the protective substances could be incorporated in a pill and a capsule and be distributed at a cost not greatly exceeding that of a daily pint of milk.

There is one further and still more important reason why such investigations should be under-

[1] Mendenhall, A. M., and Drake, J. C. (1934) *Amer. J. Obstet. Gynec.* **27**, 800.

taken. Some authorities maintain that the great majority of the adult population suffers from some degree of malnutrition, while others deny that there is any evidence, other than an incidence of secondary anæmia, in favour of such a conclusion. Dietetic surveys indicate that the average intake of the protective substances is inadequate, when calculated on a rat basis, but the transference of results from the rat to man is not justified, and it must be admitted that the optimum and minimum human requirements of these substances are not known. It is, however, universally accepted that pregnancy makes an increased demand on the maternal stores of the vitamins and minerals, and this is true of every experimental animal. If, therefore, neither the toxæmias of pregnancy nor intra-uterine death of the fœtus are to be attributed to dietetic deficiencies, then it may be asserted that there is no evidence whatsoever that any significant section of the adult population suffers from malnutrition. Conversely, if the toxæmias of pregnancy are due to this cause then there is every justification for the assumption that similar symptoms and "diseases," such as insomnia, headaches, cramps, pyelitis, albuminuria, hypertension, skin rashes, and jaundice, occurring in the non-pregnant state, may likewise be due to dietetic deficiencies. It may, with reason, be concluded that the proof, or disproof, of the dietetic deficiency hypothesis of the toxæmias of pregnancy affords the only available experimental means of determining whether malnutrition, other than iron deficiency, is a significant cause of ill health and diminished vitality in the adult population of this country.

I have pleasure in thanking Sir Frederick Menzies, medical officer of the County of London, for permission to carry out this experiment, and to publish the results. I should also like to take this opportunity of thanking Miss F. R. Sindon, the maternity sister, for so willingly undertaking the extra work necessitated by this investigation.

CLINICAL AND LABORATORY NOTES

INTUBATION OF THE MAXILLARY ANTRUM FOR ACUTE EMPYEMA

By N. Asherson, M.B. Lond., F.R.C.S. Eng.
ASSISTANT SURGEON TO THE CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL

Puncture, with subsequent lavage, of the maxillary antrum through the inferior meatus is a common way of dealing with an acute empyema of the antrum for both diagnosis and therapeusis. Antral puncture is especially indicated when, after a cold or influenza the antral infection gives rise (as it frequently does) to severe face-ache, facial neuralgia, or supra-orbital neuralgia. This underlying acute sinusitis is a condition which is more frequently overlooked (except by rhinologists) than any other disease.

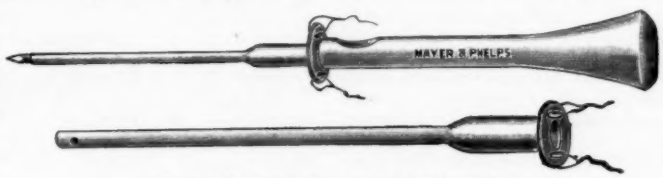
When the presence of an empyema of the antrum is confirmed by the lavage, it may be necessary to repeat the puncture and lavage on subsequent occasions. Patients shrink from this repeated puncture under local anæsthesia and consequently I always (where possible) perform antral puncture under a short nitrous oxide and oxygen anæsthesia. The patient is permitted to regain complete consciousness before the lavage is commenced.

Antral drainage (antrostomy) is called for the case that fails to respond to repeated antral puncture and lavage. This operation is not devoid of complications, of which the most frequent are otitis media and acute streptococcal tonsillitis.

METHOD

Repeated antral punctures and even an antrostomy can be avoided by the following procedure, which I term intubation of the antrum.

The intubation cannula (see Figure) is short, straight, and of wide bore. The flange is perforated by a slot on each side, to which a strong thread is applied. The cannula is of such a length that when it is inserted into the antrum, the flange lies just outside the nose, flush with the upper lip. It is retained in situ by strapping the threads to the cheeks.*



Above: The intubation trocar and cannula.
Below: The cannula alone (natural size).

Using this special retainable antrum cannula, the antrum is punctured with the trocar and cannula through the inferior meatus. The trocar is withdrawn and the cannula left in situ. The antrum is perfused with saline. A loose pad of gauze is also strapped over the nose.

The patient is confined indoors or to bed, and every 3 hours the first day, every 4 hours the next day, and subsequently three times daily the antrum is irrigated, about a pint of sterile tepid saline being used. The cannula is left in for up to a week, when it is withdrawn, cleaned, sterilised, and re-inserted

Should the ostium of the maxillary antrum be blocked—as shown by an inability to perfuse the antrum—the cannula should be left in situ for 24 hours and the lavage again attempted. Sooner or later this becomes possible as in Case 2.

ILLUSTRATIVE CASES

I originally devised intubation for use in the first of the following cases, where a plastic operation on the cheek, on the same side as the empyema of the antrum, was contemplated. A pedicle graft from the abdomen had already been grafted on to the forearm, preliminary to transplanting it on to the cheek to cover a scarred area left after the treatment of an extensive facial nævus.

Case 1.—Acute empyema of antrum cured by intubation of the antrum.

A girl of 20 complained of a right nasal discharge with severe pain over the antrum, due to an acute empyema of the antrum. An enormous amount of stinking pus was removed by antral lavage following the antral puncture. The cannula was left in situ and antral lavage was then performed every four hours during the day for two weeks, the cannula being changed every five days. For the first 10 days pus was irrigated from the antrum, but within 3 weeks the infection cleared up completely.

*The cannula is made to my design by Messrs. Mayer and Phelps, London.

It was necessary in this case (*a*) to get rid of the antral infection rapidly, in view of the imminent grafting of the pedicle flap from the arm to the face; (*b*) a Caldwell-Luc operation was not possible as encroaching on the plastic surgeon's field; (*c*) intranasal antrostomy would not have obviated the necessity for repeated antral lavage apart from carrying the risk of an acute otitis media or streptococcal tonsillitis.

CASE 2.—Acute exacerbation of a chronic antral infection treated by intubation of the antrum.

A man of 42 developed an acute infection of the left antrum followed by an acute otitis media. Transillumination and radiography revealed an opaque antrum. On puncture of the antrum no fluid or air could be perfused owing to the ostium being blocked. The cannula was left in situ for 24 hours, after which antral lavage was easily accomplished, the ostium having become patent with the relief of the tension in the antrum through the intubation tube.

SUMMARY

Intubation has the advantage of giving that continued antrum drainage which is otherwise only obtainable by an operation; avoids any complications of the latter; does not incapacitate the patient to any extent; and its application in suitable cases will prevent the condition from becoming chronic.

HÆMOGLOBINURIA FOLLOWING EXERTION

BY W. H. W. ATTLEE, M.D. Camb., M.R.C.P. Lond.
PHYSICIAN TO KING EDWARD VII HOSPITAL, WINDSOR

THE association of hæmoglobinuria with exertion is well recognised. In Germany it has been described under the name Marschhæmoglobinurie and in America very full notes of a case have been given by Watson and Fischer (1935). MacManus in this country in 1916 reported three cases in army recruits, and Witts in 1936 published notes of two cases. In all of them, with the possible exception of the army recruits of MacManus, the symptoms followed muscular exertion and had no relation to exposure to cold.

It has been noticed on several occasions that only certain kinds of muscular exertion will produce symptoms in some individuals. For example the patient described by Watson and Fischer was under observation for many weeks and hæmoglobinuria occurred only after walking. Meyer points out that other kinds of exercise such as cycling do not lead to hæmoglobinuria.

The following notes are of two cases of hæmoglobinuria in public school boys. Both were in the habit of playing strenuous school games and running long distances on grass, without symptoms, but attacks followed immediately after running on a hard road.

CASE 1.—A schoolboy, aged 17½, complained on Feb. 16th, 1916, of passing blood in the urine after running in the final heat of a mile race on the road. He had noticed it on two previous occasions after running on the road. The race was at 12.30 P.M. and the urine passed at 2.30 was dark brownish red and gave a strong reaction with the guaiacum test for blood. It contained a great deal of albumin and many urate crystals, but no red blood corpuscles. At 6 P.M. it was slightly smoky and contained a quantity of albumin. At 10 P.M. it was clear and of normal appearance and free from albumin, and remained so. On March 1st after running in a half-mile race on grass, the urine was normal and contained a faint trace of albumin only. Several tests were made later after exercise, but hæmoglobinuria was never found again.

This boy was in hard training for athletic sports and was in the habit of taking much exercise. Hæmoglobinuria was never noticed except on these occasions after running on the road. In December, 1936 (twenty years later), he reported that he was perfectly well and that the symptom had never recurred, though he had played football, cricket, and squash racquets in the interval.

CASE 2.—A schoolboy, aged 17, after having played in several preliminary football ties ran about two miles on the road as part of his training for the final. Immediately afterwards he passed urine that was slightly turbid and almost black and gave a strong guaiacum reaction. After centrifuging, the supernatant fluid was dark brown, and the deposit consisted entirely of granular detritus. No red blood corpuscles were found and no pus or crystals. Two hours later the urine was sherry-coloured, and contained a trace of albumin but no red corpuscles. After another two hours it was pale, perfectly clear, and apparently normal.

This patient too was in hard physical condition and had been playing strenuous football for many weeks and running long distances without symptoms. The only occasion on which hæmoglobinuria was noticed was after this run on the road. The blood Wassermann reaction was negative.

It seems unlikely that this sequence of events can be nothing more than a coincidence, but it is difficult to see the connexion. Lordosis has been suggested as the cause which precipitates an attack. Neither of these patients had marked lordosis, and there seems no reason to think that running on a road should induce a more lordotic posture than running on grass. No tests were carried out to prove whether the pigment was blood hæmoglobin or muscle hæmoglobin. Neither patient had any symptoms other than the hæmoglobinuria, and neither was anæmic nor jaundiced. The rareness of hæmoglobinuria is general and this association in particular seems perhaps to justify these notes.

I am indebted to Mr. Herbert Perkins, pathologist to the Paddington Green Children's Hospital, for his help in urine analyses.

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RUBBER AND SPERM-SURVIVAL

BY R. M. RANSON
(*From the Sir William Dunn School of Pathology, Oxford*)

IN the annotation on Dr. Huhner's work on sperm-survival in THE LANCET of May 22nd it is stated that sperms may die from the action of some chemical used in the manufacture of rubber condoms. Dr. Huhner does not mention this in the paper referred to, but he states that the dusting-powder used to ensure easy adjustment of the condom kills the sperms. These are subjects which have been studied for some time in the course of the general research on chemical contraception carried out under the direction of Mr. John R. Baker, D.Phil., in the Sir William Dunn School of Pathology.

It has been found that ordinary dusting-powder (french chalk) is without effect on sperms, but certain sorts of rubber are spermicidal. There is a great difference in various sorts of rubber in this respect. The most spermicidal appears to be latex rubber, for example Durex, made by the London Rubber Co., and the teat-ended sheaths for use in the tropics made by the Hygienic Stores Ltd. The least spermicidal are the grade A.1 and grade 2 teat-ended

sheaths made of moulded rubber by the Hygienic Stores. The following are intermediate: Lambutt No. 7 made by Lambert's Ltd., and the following products of the Hygienic Stores: Lion X.L., Inflated Para rubber, No. 2 washable moulded rubber, transparent Ceylon rubber, Paragon, Paragon dyed red.

In my experiments sperms are caught in sheaths of the least spermicidal sort, transferred at once to glass tubes, and brought to the laboratory. Here they are put into various sheaths in a damp chamber maintained at 37° C. For economy I put only 0·5 c.cm. of semen in each sheath. In the highly spermicidal sheaths nearly all the sperms are dead in three-quarters of an hour, and all life is extinct in one hour. In the scarcely spermicidal sheaths there is still full activity at 1½ hours, and the sperms are not all dead until 5 hours. The control sperms, in a glass tube at 37° C., are still at full activity at 5 hours.

Research is in progress with a view to finding out whether the spermicidal powers of certain sorts of rubber can be utilised as a means of contraception.

When a physician wishes to examine a specimen of semen for motility, he should get his patient to use a sheath of the least spermicidal sort and to transfer the sperms soon after coitus to a clean glass specimen-tube provided with a ground-glass stopper or waxed cork. This should be left at room temperature until examination, which should be done after the sperms have been warmed up to 37° C. for ten minutes. With this technique the sperms of some donors will still show full activity at 39 hours after ejaculation, and a few will still be alive at 3½ days.

I wish to thank Mr. J. Tynen for much practical assistance, and the Hygienic Stores Ltd. for providing material. The work was done under the auspices of the Birth Control Investigation Committee.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTIONS OF EPIDEMIOLOGY AND OF MEDICINE

AT a combined meeting of these sections held on May 28th, with Surgeon-Captain S. F. DUDLEY in the chair, a discussion on

Air Conditioning

was opened by Mr. R. FREDERICK, an Admiralty research worker, who dealt with the subject of ventilation. His experience, he said, had been gained with ships and naval establishments. In ships special attention had to be paid to ventilation because the living space was so limited. Samples of air were sent for examination to the Royal Naval Medical School, Greenwich, or when for any reason the conditions had to be examined in situ a transportable laboratory was used. This, with its equipment, he described and demonstrated. A reliable and quick means of determining respiratory impurity was, he said, by carbon dioxide determination. A proportion of 12 parts of carbon dioxide per 10,000 was quite harmless. If the respiratory CO_2 in that room were increased to 200 parts per 10,000 nobody would be aware of it. It might be noticeable at 250 parts, but it was only when CO_2 exceeded 300 parts per 10,000 that the effect became really appreciable. Anyone who had lived in an atmosphere where the respiratory impurity was 500 parts per 10,000 would probably remember it for the rest of his life. The apparatus used was devised by J. S. Haldane; the ordinary form of this apparatus read only to 100 parts, which was ample for civil purposes, but a more refined apparatus was necessary for Service purposes. The amount of air which must be supplied to keep the CO_2 down to a proper level was from 2000 to 3000 cubic feet per man per hour. This, however, was more and more coming to be regarded as only one factor; no less important was the question of floor space.

For the maintenance of comfort and a feeling of well-being, the first requisite was a moderate temperature with a moderate humidity. In temperate climates the dry bulb was of chief interest, and in hot climates the wet bulb. It had been suggested that the ideal was a temperature of 60° F. and 50 per cent. relative humidity, but most people would find that too cold. The greatest measure of agreement would, he thought, be accorded to the following:

For hard work	60–62° F.
For sedentary work	62–64° F.
For leisure	64–66° F.

with a relative humidity of 70 to 75 per cent. The wet-bulb figures given by Haldane had been widely accepted; they were:

In still air ..	88° F. for sedentary work. 78° F. for hard work.
In moving air ..	93° F. for sedentary work. 85° F. for hard work.

He thought these temperatures could be placed considerably higher.

Temperature and humidity afforded a certain amount of information whether conditions were such as to interfere with the loss of body heat, but there was another factor to be considered. The beneficial effect of air movement was due to its continual dispersal of the envelope of hot air between the clothes and the skin of the individual and to the increased effect of convection currents—in other words, the cooling power of the air had been increased. Apart from the relation of respiratory impurity, ventilation could be assessed by the dry and the wet bulb temperatures, the relative humidity and the air movement. In America this combined effect had been termed the effective temperature, and a comfort zone had been worked out, which for various reasons was not applicable in this country.

Mr. C. W. PRICE (Home Office) dealt with air conditioning in factories. The outstanding feature of the industrial field was, of course, the variety of conditions in various industries. One ship's cabin was much like another, theatres compared with theatres, and schools with schools, but factories could not be compared as the conditions under which they had to be run, imposed upon them by the nature of the processes, covered a wide range. In the term factory he included flour mills, cement works, dye works, gas works, and electrical stations, and many diverse industries. A proportion of these could be air conditioned, but it was obvious that in any large number of factories or parts of factories air conditioning would not be adopted nor recognised as within the realm of practical politics. The problem in its physical aspects was difficult, and the advent of the large single-storey partitionless factory had not made it easier. On the other hand, there was a large range of factory premises to which air

conditioning could be applied just as well as to non-industrial premises, and many plants had been installed for partially conditioning the air-supply, including plenum installations for supplying warm air in cold weather, particularly in industries in which light work was carried on. A number of plenum installations were also in use for supplying cool air to furnace workers. Air-exhausting plants were used for extracting deleterious products from manufacturing processes, and might be responsible for the whole of the ventilation since the air extracted must be replaced. The regulation of humidity in this country had so far not been adopted in the ordinary factory. There was nothing comparable with the practice in the United States and Canada. If ordinary factories were adequately ventilated as the law required, the problem of humidity was (and would continue to be) regarded as of little significance. The new Factories Bill would assist in bringing about more efficient air conditioning in many workrooms. Dust of any kind must now be extracted where practicable if produced in quantity—the provisions in force were limited to harmful dust. In not a few factories advance had already been far reaching. Even in workrooms where peculiar difficulties had to be overcome, and dangerous processes were carried on, good conditioning might be found. This had come about because employers had agreed to the provision for higher standards of ventilation while not neglecting temperature requirements. Radiation was not an air-conditioning factor, but one to be taken into account in any relative temperature evaluations. He concluded by asking to what extent in factories complete air conditioning should be adopted or recommended; even where it might be adopted with advantage, he was doubtful if the regulation of humidity was in general necessary.

Prof. E. M. FRAENKEL discussed allergic conditions and air purification. Pollution of the air was of importance in different types of allergic complaints such as hay-fever, asthma, and some cases of urticaria and eczema. The types of allergens which were effective were either outdoor or indoor impurities. The latter might be brought in by air or clothing or might consist of allergen-forming material already present (horsehair, feathers, woollen carpets, moulds, rugs, and the like) or of breakdown products formed from innocuous indoor material by the action of moulds. Air purification in the case of allergic patients was not identical with air conditioning. The walls and the contents of the rooms must be constructed of suitable material, as indoor allergens were a frequent source of trouble. Impurities from outside might be solid particles, fine droplets of moisture, or even gases and vapours—mostly a combination of two or more of these. Various methods such as filtration, freezing, washing, or the influence of an electrostatic field had been devised for air purification. He had himself worked out a special method of chemical and physical filtration for use in connexion with masks, sleeping bags, and cubicles for the diagnosis, prophylaxis, and treatment of allergic cases. This method was demonstrated by a film of an asthma subject sensitive to dog hairs.

Sir WELDON DALRYMPLE-CHAMPNEYS called attention to the psychological factor in ventilation. In the tropics he had found that white people stood up to moist heat badly, not only because they did not sweat satisfactorily, but because they were depressed by the idea that the atmosphere they were living in was too hot and too moist. He had been struck by the reactions of his companions to increasing heat and humidity, not to be accounted for on a purely physical basis. People of phlegmatic temperament stood up better to increasing heat. The same sort of thing was found in dug-outs in the war. Some men could not stand them, not on account of claustrophobia, but because they thought the place was getting unhealthy. He had also noticed in cabins in ships in hot weather when the portholes had to be kept closed how people felt as if they were being suffocated. The importance of odours in the air could not be disregarded. Odours gave some people the impression that they were being suffocated and made them very uncomfortable, although the actual physical conditions were not unsatisfactory.

GERMAN HÆMATOLOGICAL SOCIETY

INTERNATIONAL CONGRESS AT MÜNSTER

THE first meeting of the newly formed German Hæmatological Society took the form of an international congress held at Münster, Westphalia, from May 10th–13th.

Prof. VICTOR SCHILLING (Münster), who presided, gave an introductory address on the historical development and modern applications of scientific hæmatology. Outlining the gradual advance of hæmatological knowledge until the end of the nineteenth century, he dealt in detail with the work of the great hæmatologists of the early twentieth century and the foundation of the old German hæmatological society in 1908. He then reviewed the advances made in the last thirty years which would provide the themes for discussion at the congress.

The scientific communications were opened by a paper by Prof. LUDWIG ASCHOFF (Freiburg), who discussed the

Monocyte Question

from the anatomical and histopathological standpoint. Reviewing his own work and that of others he came to the conclusion that his original view that monocytes were derived from tissue histiocytes or sinus lining cells could not be maintained and that it was most probable that they arose from undifferentiated mesenchymal elements in lymphoid tissue and were directly transferred to the blood stream, as monocytes were never found in the lymph. He emphasised the distinction between monocytes and lymphocytes and went on to discuss the relationship of the plasma cell with the lymphocyte, questioning whether the marrow plasma cell was identical with that of the connective tissue, and suggested that there was still much work to be done both from the histological and cytological aspects in glandular fever and experimental *B. monocytogenes* infections.

The PRESIDENT surveyed the clinical aspects of the subject and held that few cases of true monocytic leukæmia had been described; his criteria being, in addition to the blood picture, a leukæmic infiltration of the organs. Rather surprisingly he maintained that the bone-marrow should show no alteration. Dealing with other forms of monocytosis, he mentioned the false monocytosis sometimes found when the specimen of blood has been collected from the ear; it only occurs if the first drop of blood is used for examination and is most common in cyanotic patients. He suggested that this was a static phenomenon and produced convincing evidence that the cells were not shed vascular endothelium as has been suggested.

Dr. E. LAUDA (Vienna) reviewed the relation of the spleen to blood disorders, laying especial stress on the evidence for an endocrine function which controlled bone-marrow activity and the part played by the spleen in iron metabolism. He believes that splenic siderosis is indicative of cellular dysfunction rather than increased activity and that there may be both active and passive hæmolysis in the spleen, of which the latter is the more common.

The afternoon was occupied by a series of admirable papers on the

Pathology of the Bone-marrow

Prof. H. SCHULTEN (Hamburg) described the normal cytology and technique of sternal puncture. He upheld the trialistic view of hæmopoiesis but questioned the existence of the hæmocytoblast. He was in doubt as to the difference between a pro-erythroblast and pro-megaloblast, although emphasising that the megaloblastic family of erythrocytes must be clearly distinguished from the normal erythroblastic series. He suggested that mature cells did not remain long in the marrow.

This communication was followed by an account of the pathology of the bone-marrow by Prof. HENNING (Fürth) which was one of the best contributions to the congress. He described the changes in sternal puncture preparations found in many blood diseases. In pernicious anæmia, for example, in addition to the megaloblastic proliferation, there are abnormalities in the granulocytes and megakaryocytes, in both of which hypersegmented giant forms are seen; these revert to normal after liver therapy. This change together with an enormous erythroblastic activity can be seen twenty-four hours after the first injection of liver. Prof. Henning doubts whether one should accept the idea of two distinct erythrocytic series—the megaloblastic and erythroblastic. He said he had observed a reduction of megalocytes in the circulating blood before the increase of the reticulocytes and although there were equally striking alterations in the granulocytes after liver therapy yet it had never been suggested that there were two families of these cells.

Arsenic was found to produce an increase in ripening of the megaloblasts in pernicious anæmia, but only of pathological ripening with the result that there was a considerable increase of megalocytes. Marrow puncture in the leukæmias was of little value except in the aleukæmic cases when it was of great diagnostic help. In agranulocytosis the cytology varied: in some cases there was an absence of free elements with a proliferation of reticulum cells—this was the so-called "empty marrow"; in other cases there was an apparently normal marrow but the most mature cells were lacking; and in the third type there was a great increase in myeloblasts or pro-myelocytes. In every case the cells were abnormal, showing vacuolation and nuclear changes. In glandular fever there was no cellular proliferation in the marrow and the abnormal cells found there were derived from the circulating blood. Prof. Henning described the various changes found in infectious diseases and the value of sternal puncture in the diagnosis of parasitic diseases—malaria, kala-azar, &c. Finally he discussed the value of bacteriological culture of bone-marrow. In a series of 350 cases of typhoid fever a positive culture was obtained from the sternal puncture material before a growth could be obtained from the circulating blood.

Prof. ROHR (Zurich) discussed the mechanism controlling the entry of cells into the circulation and suggested that the bone-marrow could be regarded as a closed or controllable system whereas the spleen was an open system; in conditions such as the leukoses, in which there was myeloid proliferation in the spleen and liver, the abnormal cells in the circulating blood were derived from these organs rather than from the bone-marrow.

Dr. R. KLIMA (Vienna) described the changes in the bone-marrow in multiple myelomatosis and Hodgkin's disease. In cases in which there was clinically a localised myeloma in one of the long bones, he had invariably found myeloma cells in the sternal puncture. He regarded myelomatosis as a systematised proliferation analogous to the leukoses, and suggested that the myeloma cell was closely related to the marrow plasma cell which he derived from the myeloblast but distinguished from the plasma cell found in the connective tissue in chronic inflammatory conditions. In Hodgkin's disease, although at autopsy the bone-marrow was involved in 70 per cent. of cases, no characteristic changes could be found by means of sternal puncture during life. Dr. Klima believed, however, that diagnosis could be made by means of lymph node puncture; but neither his criteria nor his conception of the typical cytology appear to correspond with the present pathological views.

The second day opened with an account of

Blood-platelets

by Prof. HITTMAIR (Wels, Austria). He discussed difficulties of enumeration and suggested that for ordinary purposes a visual estimation of their numbers in a supravital preparation was sufficient. When a numerical count was made the method must be stated owing to the enormous variation in normals with the different techniques (250,000 Fonio might read 900,000 Hoffmann). Prof. Hittmair upheld Wright's theory of a megakaryocytic origin for blood-platelets although as he admitted he was putting his head into the lion's mouth by doing so at Münster. (Prof. Schilling maintains that the platelets represent the shed nuclei of the erythrocytes and that megakaryocytes are merely histiocytic in nature.)

In bone-marrow studies, however, the number of platelets was the same as that of the circulating blood and the formation of platelets from megakaryocytes could only be observed under abnormal conditions; Prof. Hittmair upheld Rohr's view of an explosive rupture of the megakaryocyte in their formation. He discussed the changes in platelets in various diseases and their relation to blood coagulation which, he felt, was only secondary.—An animated discussion followed this paper in which the President put forward his views and demonstrated the method of rapid fixation of the blood by which he believed he could substantiate his theory.—Prof. VOIT (Solingen) showed that platelets contained no thymonucleic acid, although all cell nuclei including those of isolated erythrocyte nuclei contained large quantities of it.

Prof. WERNER SCHULTZ (Berlin) read a paper on

The Aplasias

with special reference to the hæmorrhagic diathesis. He described the changes in aplastic anæmia and agranulocytosis, mentioning that in the latter although the platelets, bleeding time, and coagulation time were normal, yet there was a severe fibrinopænia. In discussing the hæmorrhagic diseases he emphasised the distinction between blood coagulation and the stopping of hæmorrhage. The latter he associated with capillary function, showing that in a normal person the bleeding time was almost the same whether the investigation was carried out in the air, under

water, or even under heparin; however, hirudin which acted on the capillaries as well as on the coagulation mechanism prolonged the bleeding time; further, the bleeding time is not markedly prolonged at 0° C. although blood does not coagulate at that temperature.

Leucocytes.—Parasitology

In the afternoon Prof. HOFF (Würzburg) discussed the dynamics of leucocyte regulation and Dr. THADDEA (Berlin) described changes in the leucocyte adrenaline response in disorders of the suprarenals. In Addison's disease the normal leucocytosis obtained after the subcutaneous injection of 1 mg. of adrenaline is absent but treated cases give a normal reaction; on the other hand in cases of cortical adrenal tumour the leucocyte adrenaline reaction is exaggerated.—Dr. UNDRITZ (Orselina-Locarno) described a series of cases showing the inherited Pelger-Huët anomaly of the granulocytes and Prof. ADLER (Switzerland) described a new form of inherited granulocytic abnormality in which the nuclei were normal but the cells showed large darkly staining granules.

Prof. KIKUTH (Elberfeld) showed that in malarial treatment no drug has been found which attacked the free merozoites. Plasmoquine destroyed the sexual forms, and Atebrin and quinine the asexual forms.—Following this Prof. P. MÜHLENS, director of the tropical institute at Hamburg, demonstrated some excellent cinematographs of the life-cycles of malaria, leishmaniasis, and various types of spirochætes and filariæ.

The last day was devoted to

Anæmia

The PRESIDENT read a paper on the structure of the erythrocytes. He dealt particularly with the relation of reticulation to polychromasia and described the peculiar inclusions found in methæmoglobinæmia and the significance of bartonella-like bodies found in the erythrocytes in anæmia.

Prof. E. MEULENGRACHT (Copenhagen) dealt with pernicious anæmia. Recapitulating his experimental work on the pig stomach (see *Lancet*, 1935, **1**, 493) in which he showed that intrinsic factor was only to be found in the pylorus, duodenum, and cardiac region and was absent from the fundus, he went on to describe his observations in a number of stomachs obtained post mortem from pernicious anæmia cases. These showed a severe atrophy of the fundic region with intestinal heterotopia but practically no change in the pylorus or duodenum—a finding completely the reverse of that which he had anticipated from his animal observations. However, it had been shown that the proportionate amount of intrinsic factor per c.cm. was unchanged in pernicious anæmia but the total quantity of gastric juice was reduced and he was at present investigating the amount of pyloric and Brunnerian glandular substance in the pernicious anæmia stomach. He believed that regular oral administration was preferable to occasional injections both from the point of view of cost and in minimising the possibility of nervous changes. He found that a subtherapeutic dose of stomach powder (5 g. daily) when taken with liver residues (after extraction of the active factor) which were inactive alone produced a therapeutic result far greater than could be explained by a mere additative effect.

In the discussion which followed it was agreed that oral administration was mostly preferable to parenteral; but it was imperative that the anti-anæmic substance should be taken in the form of medicine and not as a foodstuff which might be shared with the rest of the family, and in many cases it was only by means of parenteral administration that one could be sure that the patient was receiving adequate and regular treatment.

Dr. H. J. WOLF (Göttingen) read a preliminary communication on the experimental anæmia produced in rabbits by means of typhoid toxin, which was only controllable by the administration of active liver material and might be made to serve as a biological method of assay. However, there were considerable difficulties, the chief being the severe illness produced in the animals which often resulted in a fatal outcome before the effect of the anti-anæmic substance could be judged.

Dr. KLIMA discussed the classification of the anæmias and suggested that it was impossible to group them solely according to cytological, ætiological, or therapeutic criteria and that it was more valuable to consider them from the point of constitutional and familial aspects.

The concluding communication was by Dr. L. HEILMEYER (Jena) on the iron-deficiency anæmias. He dealt in particular with the iron content of the serum in various conditions; this was estimated photometrically and in males found to be 100–150 γ per cent. and in females 50–100 γ per cent., but this difference between the sexes disappeared after the menopause. In a normal person, said Dr. Heilmeyer, the serum iron is fairly constant in value, the iron depôts being full and any excess iron being excreted by the gut and skin, never by the urine. However, in iron-deficiency anæmias the serum iron is low and the deficiency of storage may be demonstrated by the intravenous administration of 10 mg. of iron and repeated estimations of the serum iron. In a normal person the serum content rises to 400 γ and then falls very slowly; in deficient iron storage it rises to 180 γ and then quickly falls. In acute infections the serum iron drops to a very low figure even when no anæmia is present and large quantities of iron must be given to maintain it at a normal figure during the infection. The explanation of this is obscure but may be related to the increased activity of the reticulo-endothelial system and it is known that a siderosis of the spleen is not uncommon in infections. In untreated pernicious anæmia, the serum iron is almost invariably high and this drops to a normal figure after treatment, but in those cases in which there is deficient iron storage it will drop below normality and it is these cases whose recovery is delayed until iron is given in addition to anti-anæmic principle. Dr. Heilmeyer pointed out that the hæmatological criteria for iron deficiency were hypochromia and planocytosis. Microcytosis was not invariably associated with iron deficiency. As to the form of iron therapy, in most cases it made little difference provided it was given in sufficient amounts and although the ferrous salt was biologically active, ferric salts were readily reduced, probably with the aid of vitamin C. In some cases it was expedient to give a ferrous salt and in severe dyspepsia intravenous iron was to be recommended.

At the conclusion of the meeting Prof. MEULENGRACHT expressed the appreciation of the foreign delegates from the fifteen countries represented at the conference of the arrangements made.

Dr. STORTI (Rome) announced that the Italian Hæmatological Society, of whom he was the representative, would hold an International Congress in Rome in 1941 and invited the delegates present to attend it.

GENERAL MEDICAL COUNCIL

SUMMER SESSION, MAY 25TH–29TH, 1937

New Penal Cases

(*Concluded from p. 1349*)

ERASURE FOR CANVASSING

The Case of Bakhtawar Singh Jain, registered as of Hindustan House, Weoley Castle-road, Selly Oak, Birmingham, L.R.C.P. Edin., 1921; L.R.C.S. Edin., 1921; L.R.F.P.S. Glasg., 1921, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner, you have canvassed the patients of other registered medical practitioners for the purpose of inducing them to become patients of yours, and in particular: (1) on Oct. 31st, 1936, canvassed Albert Bird, obtained from him the medical card issued to him as a person insured under the National Health Insurance Acts, and procured his transfer to you as an insurance practitioner; (2) in or about October, 1936, canvassed Arthur Eccleston and his wife Doris Eileen Eccleston, and endeavoured to obtain them and their child as patients; (3) in or about September, 1936, on two occasions canvassed Winston Haig Evans with a view to inducing him to transfer to you as an insurance practitioner; (4) in or about October, 1936, on two occasions canvassed Mrs. Florence Jones with a view to inducing her and her husband and three children to become patients of yours. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

Dr. Jain appeared, accompanied by Mr. Arthian Davies, counsel, instructed by Messrs. Cole and Matthews, agents for Mr. Frank Rowland, solicitor, Birmingham. The complainant, Dr. Francis Ronald Gedye, a local practitioner, was represented by Mr. W. A. Macfarlane, counsel, instructed by Messrs. Le Brasseur and Oakley, solicitors.

Mr. Macfarlane did not call evidence to support the charge of canvassing Albert Bird. He called Mrs. D. E. Eccleston, who said that in October, 1936, her doctor and her husband's had been Dr. Gedye. She had just returned from hospital, and one afternoon Dr. Jain had knocked on the door and she had opened it and spoken to him on the doorstep. He had asked her whether she had a doctor. She had replied, "Yes." He had then asked her whether her husband had a doctor, and she had again answered "Yes," and that they were attended by Dr. Gedye. Dr. Jain had asked if she would like her daughter to go on his panel, and had given her a professional visiting card. This she had later burnt. Her husband, who had been sitting in the front room, asked who was there, and when she had told him that it was Dr. Jain he had shouted, "Tell him to clear off."

Cross-examined by Mr. Davies, she said that respondent had never attended her daughter, nor had she ever taken the child to his surgery. He had told her that he had been attending her next-door neighbour, a Mrs. Kesterton, who had told him that Mrs. Eccleston was ill and asked him to call on her. Mrs. Kesterton had never said anything to her about asking Dr. Jain to call.

Arthur Eccleston, her husband, said in evidence that he had known the doctor by sight. In this conversation, all of which he had overheard, the doctor had asked her if she and her husband would go on his panel, and whether they would like the child to go on it as well. As Dr. Jain was leaving he had said "I shall have to call round again." Witness had replied, "You'd better not, or you'll get into serious trouble." On cross-examination he said that he had made a statutory declaration at the request of a gentleman from London. Mr. Davies put to him a document which he admitted writing and signing on a later date; it said that his wife told him that the doctor had been sent by Mrs. Kesterton; that he had not warned the doctor he would get into trouble; that the doctor had not asked him and his wife to come on his panel, and that the allegations of canvassing had been put into his mouth by a solicitor's clerk. Asked the circumstances in which he had written and signed this document, he said that some weeks ago a woman who kept a small draper's shop some distance away had unexpectedly sent for his wife and offered her work on two mornings a week. Three days before the hearing she had asked him and his wife to supper; they had gone there, and afterwards Dr. Jain had walked in and talked about the case, showing them some papers and saying that he was a good doctor and there was no reason why witness should go to London to give evidence against him. He had also said that he was taking proceedings for slander against another doctor, and that if he did not win his case before the G.M.C. the witness would be brought into the slander case and get into serious trouble. Witness had therefore considered that the best thing to do was to wash his hands of the G.M.C. case. He had written the contradictory statement at the respondent's dictation.

Mr. W. H. Evans said that from June, 1936, onwards he was on the panel of a Dr. Thomas. He had first met Dr. Jain in July in his lodgings, but had not spoken to him. They had conversed in September at the same place; Dr. Jain had asked him on whose panel he was, and then whether he would like to change over to his panel. Witness had refused, but several times after that his landlady had tried to persuade him to change. On the first occasion Dr. Jain had asked the witness for his medical card. In cross-examination he said he had a brother called David, but that the respondent was not asking him about David's card. After he had made a statutory declaration a gentleman whom he did not know had induced him to sign a contradictory statement, of which part was true and part was not, as he had "got timid." This gentleman had told him that he would be the only one going to London. Respondent had not said he had been asked to return witness's medical card.

Mrs. Florence Jones said that in the latter half of 1936 she had had no doctor but her husband had a panel doctor. They had recently moved to their present house. A fortnight after they had moved in Dr. Jain had spoken to her on the doorstep and asked her if she would like to sign on with him. She had said, No, she would sign on with another doctor before she would sign on with him. He had given her a card, which she had burnt. A week later Dr. Jain had again asked her to come on his panel but her husband had said that they had already signed on with another doctor. In cross-examination she said she did not know whether respondent was attending her next-door neighbour or another neighbour, Mrs. Facey.

Mrs. Ellen Atterbury said she had known Dr. Jain by sight and had moved to her present address at the end of August, 1936. She and her husband then already had panel doctors. Dr. Jain had called at her house some time in October and her small daughter had admitted him. Witness had told him that her husband was in town on business. He had remarked how nice the front lawn was looking. He had gone on to say that he was attending a child

in another street, but that her child looked healthy enough. He had left his card for her husband and had called back again the same evening. In cross-examination, she said that Dr. Jain had not called for the purpose of seeing her husband about his garden.

Dr. Jain, giving evidence in his own defence, said that he had first seen Mrs. Eccleston when he was attending Mrs. Kesterton's child. Mrs. Kesterton had told him that Mrs. Eccleston wanted a doctor. He had seen Mrs. Eccleston standing at her door; she had greeted him, and he had entered into conversation with her. He had once treated her child in his surgery, on June 27th, 1936, and the visit had been entered in his day-book, which he produced. He had asked Mrs. Eccleston how she was and she had replied, and said she had a doctor of her own. He had asked after the child, and she had recalled to him the day she had brought the child to the surgery; she had said that she hoped, if it got ill again, he would not mind her bringing it back. He had not seen her husband nor given her a card, nor indicated that he wanted to attend on her child. The lady who kept the drapery shop had been one of his patients and had planned the meeting of her own accord. Mr. Eccleston had told him that he had been pestered for the last few weeks by solicitors and their clerks to go to London and wanted to wash his hands of the whole affair, because he had made a statement which was not correct but had simply been put into his mouth. Dr. Jain replied that if he signed statements at all he had better write the truth then and there. He had written it in his own words and handwriting, and no part of it had been dictated to him.

Dr. Jain said he had spoken to Mr. Evans thinking that he was David Evans, a brother who had been his patient since August. The Birmingham Insurance Committee had twice written to him asking him to return David Evans's medical record card, and he had therefore said to Mr. W. H. Evans that he had been asked to return his medical card. He put in evidence the letters from the committee. Mr. Evans had replied that he must have mistaken him for David. He had not asked Evans to become his patient. Dealing with Mrs. Jones's evidence, he said that one day on his way to his surgery he had been asked by Mr. Jones, whom he had not then known, whether he was treating Mrs. Facey's child, and he had replied that he was. Mr. Jones had then said that Facey had spoken to him about the respondent and that one of these days Jones would come to see the respondent, for he had just moved away from his present doctor and would like to sign on with respondent. Mrs. Jones, who was standing by, had then said she had a nasty cold and would come to see respondent. He had not asked her to sign on. He had not seen either of the Jones's after that. The Atterburys lived next door to the Faceys, whose child he was attending. Mr. Atterbury had on one occasion been working in his front garden and had greeted respondent, who had complimented him on the look of the garden. Desiring to put the garden of his surgery in order he had called a few days later to see if Atterbury would work on it. He had found Mrs. Atterbury in and had left his card, and in the evening he had called again and spoken to Mr. Atterbury about the garden. He had never invited any of the witnesses to come on to his panel.

Cross-examined, he said that he had been surprised to find the Ecclestons at the house of his patient, though he had known they were to be witnesses before the G.M.C. Mr. Eccleston had said that he wanted to hear the true story from respondent, as he had been pestered by solicitors. Respondent had shown him some documents to prove the allegations were untrue. The brother of one of his patients, a Mr. Waterfield, had brought him Evans's statement. This patient had asked Evans about his evidence and Evans had replied that his statutory declaration had been made under influence and that he was prepared to give the true facts. The patient had then put down his statements and handed them to respondent.

His day-book showed receipts of money on each day. These were entered at the time of receipt, therefore they were presumably in chronological order.

The Legal Assessor pointed out two dates in 1936 and asked him whether the 6 had not been altered from a 7. Mr. H. L. Eason put to him that the last entry on one of the left-hand pages was the name of Joyce Eccleston; the next entry at the top of the right-hand page bore a date which had been altered from a 7 to a 6, and lower down another entry had been similarly altered. Lower still there were two more entries, corresponding in sequence of date but purporting to be 1937 and not 1936. On the next page two other dates had apparently been altered. All these entries were subsequent to the entry of Joyce Eccleston, which would then correspond to the date on which respondent had said he had seen her. In reply, respondent said he must have copied this material from another book which he had not with him.

The Legal Assessor: "Why then did you get the entries out of order?"—"It must have been through a slip of the pen."

"They are all slips of the pen, are they? Is that your explanation?"—"Yes."

Re-examined by Mr. Davies, he said he kept two books for income-tax purposes. He had not altered this book to show that he had attended Joyce Eccleston in June, 1936. The entry had been made on June 27th, 1936.

After deliberation in camera the President announced that the second, third, and fourth charges had been proved to the satisfaction of the Council and the Registrar had been ordered to erase the name of Bakhtawar Singh Jain from the Register.

CHARGES OF CANVASSING DISMISSED

The Council dismissed the charges brought against Hugh McNicholl, registered as of c/o 105, London-road, King's Lynn, Norfolk, M.B., B.Ch. 1933, N.U. Irel., who had been summoned to appear before the Council on the following charge:—

That being a registered practitioner you have systematically canvassed personally and/or by means of an agent or agents for the purpose of obtaining patients, and in particular: (1) in 1936 or 1937, or in both of those years, canvassed patients of Guy Kinneir, a registered medical practitioner, by furnishing or causing to be furnished to them professional cards on which your name, qualifications, address, and telephone number were printed; (2) in 1936 or 1937 canvassed Mrs. Stacey by causing one of the professional cards to be furnished to her, and by endeavouring yourself to obtain from her the medical card issued to her husband as a person insured under the National Health Insurance Acts; (3) in or about March, 1936, canvassed by means of an agent Mrs. Bertha Florrie Gardiner and thereby obtained a child of hers as a patient; (4) in or about March, 1936, canvassed the said Mrs. Bertha Florrie Gardiner and thereby obtained the transfer to yourself as an insurance practitioner of her husband, Thomas Reece Gardiner, a person insured under the National Health Insurance Acts; (5) in or about March, 1936, employed the said Mrs. Bertha Florrie Gardiner as an agent for the purpose of obtaining patients by means of the

distribution of professional cards, which you handed to her, and on which your name, qualifications, address, and telephone number were printed; (6) in or about May, 1936, attempted to employ the said Mrs. Bertha Florrie Gardiner further as an agent for the purpose of obtaining patients; (7) in the summer of 1936 employed Mrs. Collins as an agent for the purpose of obtaining patients by means of the distribution of professional cards which you handed to her, and on which your name, qualifications, address, and telephone number were printed; (8) in or about February, 1937, canvassed Mrs. Kimber by means of an agent by whom a professional card on which your name, qualifications, address, and telephone number were printed was furnished to her; and (10) in or about December, 1936, on two occasions canvassed Charles Hartridge by means of an agent by whom a professional card on which your name, qualifications, address, and telephone number were printed and furnished by him. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

The complainants were the London and Counties Medical Protection Society, and members of the Council who were also members of that society withdrew. The complainants were represented by Mr. Macfarlane, instructed by Messrs. Le Brasseur and Oakley; and Dr. McNicholl appeared, accompanied by Mr. Charles Davis, solicitor, of Messrs. Bulcraig and Davis.

The first witness called in support of the charges was Dr. Guy Kinneir, a practitioner of Mottingham, London, S.E., who said that he had started practice in that neighbourhood in 1935. The respondent had come afterwards, and lived about a mile away. The patients who would give evidence lived on a housing estate nearby. One other doctor lived in the estate, but neither witness nor respondent lived there. About a year ago a Mr. Bailey, who with his wife and daughter had been witness's patient for some time but was now dead, had brought witness a professional card of the respondent (put in evidence). A Mr. Kimber, who would give evidence, was also a patient of the witness's.

Mrs. Gardiner said she had moved to her present address in March, 1936. A few days afterwards her little girl had had an accident in the street and her face had been cut. A woman had suggested that witness should take her to the "shilling doctor" and had shown her a house where respondent was visiting at the time. The respondent had put a stitch in the child's face, and witness had taken the child to his surgery to see him several times afterwards. On one of these occasions he had asked witness if she had a panel doctor. She had replied that her husband was on the panel of a Dr. Power but that his medical card had not come through. Respondent had asked the witness if her husband would go on to his panel and, if so, whether she would bring respondent the card. She had taken it to the respondent and he had kept it. Her husband had not transferred to respondent's panel until April, 1936. Respondent had told her that he had come from Greenwich, where he had been assistant to a doctor at £8 a week, and was trying to work up a practice. He was earning only £4 a week, so he was anxious to get patients. He had given her about twelve small cards with his name, address, and telephone number. She had been in the habit of going to help women who were being confined, and she had two of respondent's cards bearing the addresses of maternity patients whom she had been going to attend for him. Respondent had asked her to get patients for him. She had left two cards next door, at the house of a couple called Bargraves, who had both become his patients; and at the houses of certain other persons, who, as far as she knew, were all on respondent's panel. They had been strangers to the district. She had given three of the respondent's cards to a solicitor's clerk. These were in evidence.

On a day in May, 1936, respondent had visited her in her house and asked if she had any more patients for him. Her husband had said that this was not right and that doctors should not canvass. Respondent had answered that he must get patients, as there was so much competition about, and her husband had said he would not permit her to canvass. She had got no more patients for respondent. She had seen one of the cards in the possession of Mrs. Collins, and had also seen Mrs. Collins visiting from house to house and leaving the cards. Mrs. Kimber was a friend of the witness's, and she had seen a similar card in her house.

In cross-examination, Mrs. Gardiner said that at the time of her first visit with her daughter to the respondent she had told him about her affairs and her husband's complaints. Her husband was a shell-shock patient who suffered from neurasthenia. Respondent had not at the time asked her to bring her husband's card to the surgery; he had done this at about the third interview. She had told him that she understood the work of a handy-woman and would like some work. Asked if she and the doctor had not fallen out, she replied that if this was the respondent's version of the facts it must stand; as far as she was concerned, it was a secret. She agreed that she had fallen out with him, but denied that she disliked him a good deal. She had walked with Mrs. Collins part of the way round the streets when Mrs. Collins was leaving cards at every house. Mrs. Collins had asked the inhabitants whether they had a panel doctor, and had told them that the card was that of a thoroughly good doctor whom she could recommend. Witness admitted that she had been very concerned about finding the respondent's card with Mrs. Kimber; there were four doctors in the neighbourhood, all of whom had to make a living; "We make it our concern." She had kept the cards because there had been rumours going round that she did not know her work and was responsible for Mrs. Collins's illness after her confinement; also that she was going to be persecuted in one way and another, and that respondent was going to bring an action against her for slander.

Respondent's solicitor admitted that two other patients had received cards from Mrs. Collins, but denied that she was respondent's agent.

Dr. Charles Wortham Brook, another practitioner of Mottingham, said that after receiving certain information from a patient he had written a letter to respondent saying that a woman had been trying to persuade the wife of one of his patients to go on respondent's panel, and asking for respondent's explanation. He had had no reply until respondent had telephoned to him eleven days afterwards saying that he had sent a reply. He had since received respondent's cards from several of his patients. Respondent had, over the telephone, suggested a meeting, but after careful consideration witness had decided that he ought not to meet him alone. He had got into touch with other practitioners, who had advised against the meeting. He had sent the papers to the Medical Defence Union, but this body had taken no action, as respondent was also a member. He was not coöperating with other practitioners to get respondent out, although respondent was putting them in a difficult position.

Dr. McNicholl, examined on his own behalf, said that he had never authorised anybody to canvass

or give his cards away. He had had a number of cards printed so that he might give them to patients to remind them of his consulting hours and address. He had not given them to anyone other than his patients. The first he had heard of the allegations had been in a telephone conversation with the secretary of the Medical Defence Union, whom he had afterwards visited. The secretary had told him that Dr. Brook had complained that one of his patients had received a card, and advised him to find out the person responsible. The description of the woman who had given the card corresponded with that of Mrs. Collins, his housekeeper. On returning home he had asked Mrs. Collins if she had distributed cards, and she had denied it, but eventually she confessed that she had taken some of his cards out of his surgery to give to her friends. Mrs. Collins had been a patient of his early in 1936 and he had attended her in her confinement. Mrs. Gardiner had been looking after the house. He had had high words with Mrs. Gardiner, after which she had never done any more work with him. He would not employ her any more, because she interfered with him. Mrs. Collins had afterwards asked him for work and he had employed her, first as his charwoman in his surgery and afterwards, when he bought the house, as his housekeeper.

On the occasion when he had first treated Mrs. Gardiner's child, she had asked him if he took panel patients, and said she would like to get her husband on to his panel, because he always had fits whenever he saw his present doctor. Later she had brought the panel card to him for signature. The only cards he had ever given Mrs. Gardiner had borne the addresses of maternity patients to whom he was introducing her as a handy-woman. He denied ever asking her if she had got him any more patients or telling her anything about what he was earning. In addition to a part-time assistantship he had two appointments; he was never short of money and in fact had soon been able to buy his house. Mrs. Stacey had consulted him for a skin rash and he had prescribed injections. At one interview her husband had asked him if he was on the gas company's panel, and on hearing that he was had offered himself as a patient, and respondent had signed his card then and there. He had never at any time canvassed for patients. He had been warned against Mrs. Gardiner by another doctor and would never have asked her to do anything for him. He had never employed Mrs. Collins as his agent, and when he had found out that she had canvassed he had told her to go. He was retaining her for the time because she had no other means of livelihood.

Cross-examined, he said that he had not received Dr. Brook's letter until six days after its date. He had sent a reply saying that he knew nothing about the canvassing and could only suppose that it had been done maliciously; a copy of the letter was in evidence. Mrs. Collins said in evidence that she had consulted respondent in March, 1936, and he had attended her in her confinement in September. Mrs. Gardiner had been recommended to her by respondent, but Mrs. Gardiner and respondent had quarrelled. Respondent had given her work and had lent her money. He had never given her any cards to distribute, but in her gratitude to him she had taken some cards without his knowledge and distributed them. He had discovered this and said he could not understand how people were getting his visiting cards. She had not at the time enlightened him, because she did not want to lose her sole means of support. He had, however, challenged her on a later occasion and she had confessed. He had wanted to put her out of the house there and then, but she had persuaded him to keep her on, which he had done out of compassion.

Mrs. Ivy Doyle said that she had called every day to set the respondent's house in order. Respondent had asked Mrs. Collins in her presence if she had taken any cards out of the surgery, and Mrs. Collins had denied it. Witness had afterwards asked her the same question and Mrs. Collins had again denied it, but afterwards admitted it to the respondent. She had asked the witness to beg her off from dismissal.

Mrs. Elizabeth Perrott testified that respondent had been attending her at her house when Mrs. Gardiner had come and asked him to see her child. Mrs. Gardiner had been very talkative and had given respondent her whole life-history. Respondent had told her to bring the child to his surgery; she had not been able to understand the address, so witness had given her one of respondent's cards which she had by her. Mrs. Gardiner had asked respondent if he would take her husband on to his panel.

A Mrs. South also said in evidence that Mrs. Gardiner had requested respondent to take her husband on to his panel.

Mr. T. C. Smith, formerly the owner of respondent's house, said that he had given one of the respondent's cards to Mrs. Kimber without respondent's knowledge, as Mrs. Kimber had asked him for the address of a doctor to treat a stye in her eye. Mr. Stacey said in evidence that he had gone on to respondent's panel of his own accord. He had previously had a card left at his house, but did not know by whom. Respondent had been attending his wife when he had transferred to respondent's panel.

After deliberation in camera, the President announced that the charges had not been found proved to the Council's satisfaction.

The Case of Albert Rudolf Rellum, registered as of 39, Dockhead, Bermondsey, London, S.E.1, L.R.C.P. Edin., 1921; L.R.C.S. Edin., 1921; L.R.F.P.S. Glasg., 1921, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner, you have canvassed the patients of Joseph Frelich, a registered medical practitioner, with a view to inducing such patients to become patients of yours, and in particular: (1) in or about the month of November, 1936, you canvassed William Selley, a patient of the said Joseph Frelich; (2) in or about the month of November, 1936, you canvassed Elizabeth Selley, the wife of the said William Selley, a patient of the said Joseph Frelich; (3) in or about the month of November, 1936, you canvassed George Fred Selley, a son of the said William Selley and Elizabeth Selley, and induced him to become a patient of yours; (4) in or about the month of November, 1936, you canvassed William John Selley, a son of the said William Selley and Elizabeth Selley, a patient of the said Joseph Frelich. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect.

Dr. Joseph Frelich, a practitioner in Bermondsey, presented his own complaint, and Dr. Rellum was accompanied by Mr. John Ritchie, counsel, instructed by Messrs. Simon, Haynes, Barlas and Ireland.

Dr. Frelich said that Dr. Rellum had been his assistant but he had dismissed him early in March of the present year. Mrs. Selley had called at his surgery and told him that the respondent had been canvassing members of her family, patients of Dr. Frelich, to become respondent's patients.

Mr. and Mrs. Selley and two of their sons gave evidence to show that Mr. Selley had had an accident

some years ago and had claimed compensation. Dr. Rellum, who had then been Dr. Frelich's assistant, had examined him and given him a certificate on which he had made good his claim. The family had been friendly with the respondent, who had been chronically short of money and had frequently borrowed various sums from Mr. Selley. On one occasion he had said that he must get as many patients as he could and had asked them to go on his panel. They had refused, except the youngest son. Mr. and Mrs. Selley admitted that they knew that Dr. Rellum was under a bond not to practise in the neighbourhood, and that he had received a letter from the insurance committee saying that he could not visit patients in Bermondsey.

Without calling on the respondent, the Council decided that the charges had not been proved to its satisfaction.

REVIEWS AND NOTICES OF BOOKS

Diagnosis and Treatment of Arthritis

By RUSSELL L. CECIL, M.D., Sc.D., Professor of Clinical Medicine, Cornell University. London: Humphrey Milford, Oxford University Press. 1937. Pp. 263. 21*s*.

THIS is one of a series of monographs, edited by Dr. H. A. Christian and written by leading authorities, whose object is "to bring to the practising physician a knowledge of the most approved methods for the diagnosis and treatment of disease." Dr. Cecil, whose investigations into the infective nature of acute rheumatism and rheumatoid arthritis are of recognised importance, has written the volume on arthritis. At the outset he states—and few will differ from him—that "there is no disease in the whole field of medicine in which purely symptomatic treatment leads to more barren results." The title is used to cover a wide field including rheumatic fever, and certain of the less common forms of arthritis are unusually well described. Septic arthritis, including gonococcal and staphylococcal and rarer forms, traumatic, syphilitic, and tuberculous arthritis and intermittent hydrarthrosis among others are clearly differentiated. In view of the important researches carried out by the author himself into the bacteriology of rheumatic fever and rheumatoid arthritis it is natural that much space should be devoted to this aspect. The work of other investigators receives due consideration, and the conclusion is reached that though the streptococcus is an important ætiological factor, the particular type of streptococcus involved is not yet settled; the findings appear to strengthen the view that mutation takes place between the different types. The author favours the use of streptococcal vaccine by the intravenous route in the treatment of rheumatoid arthritis but warns against overdosage which may cause a severe exacerbation of the disease. There is certainly a reaction against this form of treatment and any benefit that may accrue is now generally attributed to desensitisation rather than immunisation. Other methods of treatment are fully described together with useful systems of diet.

The section on gout adds nothing to common knowledge. It is curious that the British spas where gout has been successfully treated for centuries are not mentioned whereas certain continental spas of less importance in this respect are approved. The section on spondylitis is scanty; the so-called von Bechterew type is regarded as the osteo-arthritic form, which is not the view held by most of those who have referred to von Bechterew's original description.

The book is well got up and the illustrations are good. It will be found a useful and practical guide to the management of a common but difficult group of diseases and though it is sketchy in parts a very full list of references is supplied.

Early Science in Cambridge

By R. T. GUNTHER, M.A., Hon. LL.D., Curator of the Oxford Museum of the History of Science. Oxford: Published by the author at the Old Ashmolean, Oxford. 1937. Pp. 513. 42*s*.

Dr. Gunther has earned everyone's gratitude by what he has done for the Old Ashmolean Museum and for the series of books on early science in Oxford which he has published. He now turns his attention to Cambridge. His work is not a formal history but, as he says, more a series of notes centring round a list of surviving instruments which have been associated with teaching and research in Cambridge, many of which were shown at an exhibition in the Old Schools in 1936. It is full of interest, and if we fail to find something which we might expect we come across a great deal which is surprising. How those who discuss the curriculum must envy the education which William Stukeley got about 1705: "We hunted after butterflys, dissected frogs, used to have sett meetings at our chambers to confer about our studys, try chymical experiments, cut up dogs cats and the like"; small wonder that when he reached the dignity of Goulstonian lecturer he had risen to dissecting an elephant. Or read of the wise royalist Dr. Bowles who, having to treat for a dysentery a roundhead captain who had been tearing up prayer books, cured his patient by a decoction of the prayers for the visitation of the sick from the defiled volumes boiled in milk. No very clear distinction seems to be made between work done in Cambridge and work done elsewhere by Cambridge men, and there are we suspect a fair number of small inaccuracies, but we can heartily commend the book for casual reading. It will probably incite many journeys to Cambridge to see such things as Charles Darwin's red handkerchief draped over the microscope he used to use, and to residents will no doubt be quite a revelation.

Milk Products

By W. CLUNIE HARVEY, M.D., D.P.H., Medical Officer of Health, Southgate; and H. HILL, Sanitary Inspector, Southgate. London: H. K. Lewis and Co. 1937. Pp. 387. 16*s*.

THE milk products described are ice-cream, cream, butter and margarine, cheese, condensed milk, evaporated milk, dried milk and some subsidiary milk products such as fermented milks and malted milk. The subjects are dealt with on a regular orderly plan which is convenient and easy to follow: definition, food value, bacterial content and their sources, manufacture, any diseases transmitted by the particular food, chemical composition, bacteriological and chemical examination, legal position, and where appropriate any legal or recognised standards. The balance between these different sections is, for the most part, well maintained. Ice-cream is fully

discussed—this chapter occupies 84 pages—while evaporated milk might have been given a little more space. Very little of importance is omitted but no mention is made of staphylococcus food-poisoning in connexion with cream-filled pastry, a matter of increasing importance. No colour tests are given for the presence of vitamins added to margarine; indeed, the chemical examination of margarine seems to be omitted. The difficulty of making a satisfactory injection emulsion for examining cheese for tubercle bacilli is not dealt with. Under the heading sweetened condensed milk the hydrometer is given as the only instrument whereby the progress of concentration can be determined; the use of a viscometer is not mentioned. Emphasis might have been given to the importance of the retainer in connexion with the moisture and bacterial content of dried milk.

Much of the information given is not readily accessible elsewhere and the authors have done a considerable service in making it available in this well-written and convenient form.

Hospital Law Notes

By W. E. C. BAYNES, M.A., LL.M., Barrister-at-Law. London: Joint Council of the Order of St. John and the British Red Cross Society. 1937. Pp. 93. 5*s*.

Mr. Baynes, who is honorary legal adviser to the British Hospitals Association, has found that the same questions are repeatedly put to him by secretaries of voluntary hospitals. He has therefore collected for publication the notes on points of law which form the substance of his replies. They cover almost every conceivable legal or semi-legal difficulty which a hospital secretary is likely to encounter. There is an adequate index and footnote references are given to the principal leading cases. The allusions to the National Health Insurance Act of 1924 need to be adjusted to the consolidating statute of 1936. Similarly in the note on infectious diseases the references on pp. 21 and 22 to the public health enactments of 1875 and 1925 and the Infectious Disease (Notification) Act of 1889 will need to be replaced next October by references to the equivalent provisions of the big new Public Health Act, 1936, which Mr. Baynes cites at p. 55 as if already in force. These, of course, are minor points; the law is accurately stated but the statutes where it is now to be found have been rewritten in the past twelve months. The notes on road accident patients, on the recovery of income-tax under subscribers' seven-year covenants, and on liability for negligence are good instances of the clear and concise help which Mr. Baynes offers to his readers. The secretaries of hospitals and similar institutions who buy his little book will get good value.

War Dance

A Study of the Psychology of War. By E. GRAHAM HOWE, M.B., B.S. Lond., D.P.M. London: Faber and Faber. 1937. Pp. 315. 7*s*. 6*d*.

IT is no indictment of Dr. Graham Howe's work to state that his thesis is a search for a mystical solution of the problems of human behaviour. War represents one of the types of disharmony which can, he holds, be overcome by the same methods which he has attempted to expound in earlier books ("I and Me," and "Morality and Reality")—i.e., by a resolution of the antinomies in the self—the duality of inner and outer, private and public, cognitive and conative, thinking and spontaneous living. Dr. Howe enjoys similes and aphorisms (some penetrating, others singularly impenetrable) carrying the reader along in a pleasant flow of bright ideas and dark sayings. But as one reads on, it seems that one has not progressed in a stream, but raced in a whirlpool. Dr. Howe has been unwise, perhaps, to invoke the Fourth Dimension. Of course, if we could be in all dimensions at once, woefully as we are tied to three (and quite incapable of living in one or two) reality would certainly be revealed to us. But here we must use mathematical notation and not surrealistic (polite variety) drawings which do not, for most people, clarify the issues. Dr. Howe would have succeeded better, indeed perhaps brilliantly, if he had chosen another title. For he has said little about war and the reader is left with the impression that "c'est magnifique, mais ce n'est pas la guerre."

British Journal of Children's Diseases

(VOL. XXXIV., April–June).—In an article on Epidemic Myalgia in Children, Dr. W. N. Pickles reviews the literature and records his experience of an outbreak of 31 cases which occurred in Wensleydale, Yorkshire, in the summer of 1933; 15 were in children under 11 years of age, 15 in young adults, and one in a man of 52. His conclusions are as follows: The disease appears to spread by direct contact, and the incubation period is short, ranging from two to four days. The period of infectivity continues during the course of the disease which is also short. There is no evidence that the disease is conveyed by food, water, or animal vectors. It occurs mainly in the late summer and autumn. One attack does not confer immunity. The chief importance of the disease which has good prognosis is its tendency to simulate serious conditions such as acute pneumonia and acute abdominal emergencies, especially appendicitis and intussusception.—In his paper on Morbilli Bullosi Dr. G. W. Ronaldson, who records two personal cases, one in a girl aged 4 years who recovered, and another in a female infant of 10 months who died, illustrates the rarity of this condition by the fact that they were the only examples of morbilli bullosi in a series of 4362 cases of measles admitted to the South Eastern Fever Hospital in the period 1930–36. Ronaldson maintains that morbilli bullosi should be defined as a variety of the measles exanthem and not as a distinct variety of the disease. He classifies the reported cases into one or other of the following three groups: (1) cases in which a bullous eruption was associated with a morbilliform erythema; (2) well-authenticated measles with an eruption which had pemphigoid elements, of which his two cases were examples; and (3) cases of measles in which a bullous eruption followed the true rash either immediately or after varying intervals.—Dr. E. F. Dawson-Walker and Dr. E. G. Brewis contribute a paper on Two Unusual Cases of Diphtheria. The first was a case of a severe naso-pharyngeal form of the disease in a female infant aged 9 days. Recovery followed two intramuscular injections of antitoxin. Nasal and faucial swabs showed *C. diphtheriæ* of the intermedious type. The second case was that of a boy 12 years old who developed chorea in the course of characteristic diphtheritic paralysis, and recovered. Similar examples of this very rare complication of diphtheria have been recorded by Globus (1923), Critchley (1924), and Mühlenkamp (1934).—Dr. D. MacIntyre and Dr. H. L. W. Beach report a case of Acute Encephalomyelitis Complicating Chicken-Pox. The patient was a girl aged 7 years, in whom the complication developed on the twelfth day of an attack of chicken-pox. Complete recovery took place without any special treatment in the course of three months, and when seen about eight months after discharge from hospital the child showed no sign of mental or physical weakness.—The abstracts from current literature are devoted to acute infectious diseases.

THE LANCET

LONDON: SATURDAY, JUNE 12, 1937

WAGES AND HEALTH

THE prospect of a declining population was recently reviewed in our columns.[1] It may be, as some of the writers on the subject contend, that the low and falling net reproduction-rate arises rather from psychological than economic causes. Nevertheless, those who live below the margin of subsistence have a specially good reason to make increasing use of the contraceptive measures now at their disposal and so accelerate the fall. Science has given the poverty stricken a practical answer to the assumption that their continuance in that state is an inevitable, if regrettable, feature of the social system. They can now die out of their own volition. Whether the prospect of a falling and ageing population is a matter for alarm or not, there are students of economics who maintain that there is no reason why the extreme forms of its economic origins should continue. Mr. SEEBOHM ROWNTREE has recently rewritten his book, first published in 1918, on the "Human Needs of Labour."[2] His basic facts are derived from a survey of 2875 completed families in the town of York; families completed in the sense that the mother was aged 40 to 45 years at the date of the 1931 census. He has been able to trace the number of dependants in different sizes of family from year to year since the eldest child was born. He gives reason for believing that York is a fair sample of the country, but admits that his investigation is too small to yield absolutely conclusive results. Of these families, 17·7 per cent. had no children, 25·1 had had a maximum of one child, 24·5 two children, and 14·7 three children simultaneously dependent at some time, the percentages rapidly diminishing for larger maximum dependencies. The percentages of children in these families, arranged in the same order of classification, but excluding the childless families, were 12·34 for one child, 24·02 for two children, 21·63 for three children, and so on, dependent at any one time.

Mr. Rowntree's line of inquiry is designed to explore the problem of a living wage and it shows that, if such a bare minimum wage were to be based on the needs of families with two children only, 63·6 per cent. of the children of all fathers receiving it would be inadequately provided for at some time and 58·8 per cent. would be in this condition for five years or longer. Even if the minimum wage were determined on the needs of families with three children, 42 per cent. of families of all sizes would be inadequately provided for over varying periods, and 34·5 per cent. for five years or more. In his view, a minimum wage is necessary and practicable. It should be fixed on the needs of a man, woman, and three children, the requirements of larger families at low income levels being met by the admittedly difficult provision of State family allowances. In endeavouring to determine such a wage he uses average retail and other prices of his own ascertainment applied to the estimated needs of a family of five persons. As regards food he has been guided by the dietaries contained in "Family Meals and Catering" published by the British Medical Association, giving 3400 calories per man for a family equivalent to 3·78 adult males. In this way he builds up a minimum wage of 53*s*. per week, including 20*s*. 6*d*. for food, 9*s*. 6*d*. for rent, 8*s*. for clothing, 4*s*. 4*d*. for fuel and light, 1*s*. 8*d*. for household sundries, and 9*s*. for personal sundries. Mr. Rowntree has been publicly criticised by the Children's Minimum Council[3] for the meagreness of his dietary, but he has been careful to state that he has deliberately erred on the side of stringency rather than extravagance, that even this wage (or its equivalent of 41*s*. in the case of agricultural workers) would be a great advance on anything earned by a large proportion of workers at the present time, and that his experience on a trade board leads him to believe that its gradual but reasonably rapid application to all industries would have no crippling results. He is aiming at the bare subsistence necessary for health and well-being not at an income above the level of which they could not be improved.

If this minimum income of £137 16*s*. per annum for industrial workers is accepted, it would be important to know how many families are maintained below this level. This, unfortunately, it appears to be impossible to ascertain with anything approaching accuracy. A general impression, however, may be gained from official figures and from estimates made by various writers. In their latest book[4] G. D. H. and M. I. COLE paint a picture of our society on a much wider canvas than Mr. Rowntree's, bringing together data gathered by experts about national and class incomes, nutrition, housing, unemployment, education, standards of life, social services, taxation, production, and the past and prospective struggles of working men for better conditions. The facts are as near the truth as the available methods of scientific investigation permit, whatever may be our view of the remedies proposed by the writers. In May, 1936, there were nearly one and a half million males unemployed, of whom more than one million were over 25 years of age. Some of these were certainly unmarried and many at such an age that their families had ceased to be necessarily dependent, but it is well known that a large number have a wife and three or more young children to maintain. Unemployment benefit for such a family is at the rate of about £78 a year; for the chronic unemployed who come under the Public

[1] *Lancet*, April 17th, 1937, pp. 933, 944.
[2] London: Longmans, Green and Co. 1937. Pp. 162. 2*s*. 6*d*.
[3] *Times*, May 8th and 17th, 1937.
[4] The Condition of Britain. London: Victor Gollancz. 1937. Pp. 470. 7*s*. 6*d*.

Assistance Board it may be higher according to circumstances but, in any case, usually it is less than £100. When to those groups are added the families who are entirely dependent upon local poor-law assistance, usually at comparable rates, it is evident that many of the non-earning families in the community have far less to live on for prolonged periods than the estimated subsistence wage. As to those who are earning, it appears from estimates of COLIN CLARK, quoted by the COLES, that more than 60 per cent. of the national incomes in 1929 (i.e., before the financial crisis) were below £125 per annum and, indeed, that the average of all incomes was below £200 per annum. It should be remembered that more than one income may be represented by one family; there are, in fact, more than twice as many incomes as there are families. Nevertheless, it is clear that many young families dependent on a single wage earner must fall into the lower earning categories. Knowledge of local families and their wages indicates that this is the case.

If, then, scientific work on nutrition and the inquiries into the costs of commodities are anywhere near the mark, the volume of those who are inadequately fed must be large. The Government has recognised this position by urging local authorities to make fuller use of their powers to provide free or cheap meals and milk for children, and for expectant and nursing mothers. In recent years the urgent need for an outlet for the surplus production of agriculture has provided a new incentive to the governments of all countries represented at Geneva to arrive at an international policy which will increase the consumption of food. In the meantime, there is scope for further intensive inquiries into local family incomes, such as those included in the London and Merseyside surveys and in MCGONIGLE'S investigations at Stockton. Possibly the survey to be carried out by the Ministry of Labour in connexion with the cost of living will afford information covering a wider range of the population than any data at present available. The needs of people can only be estimated roughly but actual incomes should be ascertainable with a reasonable measure of precision.

BATHING AND THE EARS

As summer weather has now happily arrived, we may expect the usual crop of ear troubles due to bathing. Man is not an aquatic animal and, unlike many mammals that have reverted to a life in the water, he has no mechanism for closing the auditory meatus or the nostrils; hence water can reach his ear either through the meatus or through the Eustachian tube, though harm is rare in proportion to the number of bathers. Water easily gets into the meatus during swimming and produces a disagreeable sensation, but it soon runs out again from an unobstructed canal. If, however, there is any considerable quantity of wax, this imbibes the water, swells, and obstructs the passage; so that the sensation of water in the ear, persisting long enough to cause the sufferer to seek advice, is nearly always caused by cerumen and cured by its removal. Those who secrete much wax should have it removed before the bathing season. This retention of moisture readily leads to a dermatitis and is the usual cause of external otitis resulting from bathing. Apart from the presence of wax, those with a tendency to eczema are apt to suffer an exacerbation from bathing; such people should wear an efficient plug and dry the ears carefully afterwards; they may with advantage insert a few drops of oil or of nitrate of mercury ointment (1 drachm to an ounce of equal parts of olive oil and liquid paraffin). In some tropical regions, a very severe form of external otitis is a common complication of bathing apparently caused by minute larval forms of marine organisms; "Bombay ear" and "Singapore ear" are well-known examples.

Much more important than external otitis is the middle-ear suppuration that may result from bathing. One important cause of this is the entrance of water through an old quiescent perforation of the drum—an event liable to be followed by very severe suppurative otitis and the danger of serious complications. Patients with an open perforation should never bathe without using really efficient means of preventing the entry of water into the ear. A plugging material, made of a mixture of animal wool and plasticine or wax, is obtainable at chemists and is satisfactory if intelligently applied; but ordinary cotton-wool is worse than useless since it only gives a false sense of security; a rubber bathing-cap to cover the ears should be worn over any plug. Unfortunately, people with perfectly healthy ears, too, may get acute otitis media after bathing, owing to the entrance of water into the tympanum through the Eustachian tube. This occurrence is assisted by swallowing and, more frequently and particularly, by forcibly blowing the nose while the nasal passages are still full of water. If the public could but be taught to refrain from blowing the nose until the water has drained out of it, otitis media after bathing would become rare. Patients with otitis from bathing very often give a history of a sudden crack and pain in the ear on blowing the nose, followed soon by earache. The ear is peculiarly susceptible to infection by micro-organisms thus introduced, and although of late much care has been devoted to the purification of swimming pools and baths, these may play an important part in the spread of streptococcal infections when, as in a school, such diseases as rhinitis and tonsillitis are present. Epidemics of nasal sinusitis have also had a similar origin. But infection of the bathing water is not an essential condition, for organisms from the patient's own throat or nose may be carried with the water along the Eustachian tube. Otitis media from this cause is naturally more likely during an attack of coryza or sore-throat and bathing should be avoided by people thus afflicted.

In conclusion, it may be said that when the external meatus and drum is healthy, plugging the canal is unnecessary except to prevent direct damage in high diving. The subject of a perforated drum runs a substantial risk from the entry of

water and must be very careful to exclude this if he bathes at all. A healthy drum can only be infected through the Eustachian tube, and this is unlikely if the bather refrains from swallowing while in the water and, especially, from blowing the nose on coming out, and if he does not bathe while he has a cold or a sore-throat.

ELEMENTS OF POPULATION

IF the predictions of both amateur and professional soothsayers are even reasonably near the truth, the future of our population is a question likely to remain in the public eye for quite a long time. The basis of these predictions is, of course, the present level of fertility and mortality, with various adjustments made to each according to the worker's idea of what may happen to those rates in years to come. One and all are agreed that (apart from immigration) our population must within a few years begin to decline, and unless there is a considerable increase in the birth-rate, to decline at an accelerating rate. And so the question arises as to whether anything can be done to check a further decline in fertility, whether with the aid of a Royal Commission the urge to contraception cannot be stayed. Most, but by no means all, competent observers believe that the fall in fertility is mainly, if not entirely, due to deliberate control of the size of family. But clearly contraception is only a means to an end, and it is the basic causes that lead to the adoption of the means that we want to know more about. It seems a far cry from Royal Commissions and planned families to fruit flies and flour beetles, but as RAYMOND PEARL, a pioneer of the experimental approach in this field, has recently emphasised,[1] the fundamental problems of population are biological problems. What, for instance, is it that makes populations slow up in their growth rate and approach ever nearer to a limiting size which they never quite reach? What is the explanation of the phenomenon of periodic rapid multiplication of populations of lower mammals, of which lemmings are the classic example? Are there laws of population growth by which man, as well as the lower animals are bound, so that the best laid schemes of committees can have little effect upon his development? The sociologist, the experimental biologist, and the ecologist must play their part in solving such problems; none of them can succeed in doing so alone.

The experimental method has already given results of much interest. For instance several studies suggest that groups of insects survive the effects of various environmental poisons more easily than do isolated individuals. These have shown that morphological changes may take place under certain conditions of crowding. The factor which has had most attention paid to it is density, and a very interesting discussion of its influence has been published[2] by Dr. THOMAS PARK, of the department of biology of the school of hygiene and public health, Johns Hopkins University. PEARL'S work on drosophila is well known; it shows the inability of this fly to oviposit and feed adequately when disturbed and this provides evidence that population density may alter the behaviour of its components. Less familiar perhaps are the experiments which PARK quotes of various workers with *Tribolium confusum*, a beetle which spends its entire life-cycle in flour. Here also a limiting size to the population in relation to its environment has been observed. These beetles eat their own eggs and this cannibalism varies directly with the number of eggs and imagos present, so that when the concentration of the latter is high the rate of cannibalism is high. Also, flour in which dense populations of tribolium have lived has its nutritive value reduced and is affected by the addition of excretory and metabolic wastes. It has been shown that beetles living in this "conditioned" flour have their fecundity drastically lowered and their larval mortality increased. It thus seems that an environmental modification takes place which is a result of the activity of the population itself, and this modification plays an important part in guiding the course of the tribolium population. PARK also quotes the work of MACLAGAN and DUNN[3] on the grain weevil sitophilus which shows decreased fecundity with increasing density, which seems to be due, as with drosophila, to reduction of the times available for feeding, ovipositing and resting, which caused adverse effects upon the physiological processes of reproduction.

Such studies as these are still adding to the little we still know of insect populations and the underlying principles of their growth. Of mankind we know perhaps even less. PEARL'S interpretation of the scanty data seems the most reasonable—that for thousands of years the human population of the earth grew slowly till some 300 years ago the development of scientific discovery (including exploration as well as technology) "suddenly expanded man's effective universe and has kept on expanding it. There has followed a spurt of population growth of an explosiveness that is seen, when plotted to a proper time scale, to be comparable to that of an epidemic." This history PEARL compares with what we know of the lemming. The essential biological elements he suggests are these: first a population relatively constant or very slowly growing as a consequence of the operation of natural check; secondly, during a relatively short period on the total time scale of the species these checks are abated and a large expansion results; thirdly, the increasing density leads to disturbance reactions; and lastly these reactions lead to undirected mass migratory movements and ultimate destruction of major parts of the population. Up to a point there seems to be a parallelism in the history of mankind. Unrest is a dominant characteristic of human behaviour to-day, perhaps a symptom of discomfort associated with density. Not being a prophet PEARL does not envisage "mankind

[1] *Amer. Nat.* 1937, **71**, 50.
[2] *Ibid*, p. 21.
[3] *Proc. Roy. Soc. Edinb.* 1935, **55**, 126.

marching to a watery grave just behind a horde of frantic lemmings. But does anyone," he asks, "find it difficult to conceive of man marching off in the not too distant future to a war? Or to doubt that, once well started, that war will entangle in its meshes the major portion of mankind before it is finished? Or, finally, to doubt that the next world war will achieve a destructiveness hitherto undreamed of in the wildest flight of imagination?" The thought is not a cheerful one; perhaps, as PEARL admits, it is essentially false. But the problems of population are difficult and serious; nothing but good can come of each form of attack upon them while general discussions such as PEARL has published merit thought and attention.

ANNOTATIONS

THE CAPITATION FEE AWARD

THE court of inquiry into the insurance capitation fee met at the Ministry of Health on four successive days from May 26th to 29th when Dr. H. Guy Dain presented the case for the Insurance Acts Committee of the British Medical Association and Mr. T. D. Harrison presented the case of the Ministry of Health and of the Scottish Department of Health. The Medical Practitioners' Union and the Joint Conference of Friendly Societies also gave evidence. At the conclusion of the inquiry Lord Amulree, the chairman, expressed the court's high appreciation of the cases which had been presented so fairly by the parties concerned and added the hope that the decision the court would presently announce would give satisfaction. After an interval of a week the finding of the court was published on Monday last to the effect that the appropriate capitation fee should remain 9s., the figure applying both to insured persons over the age of 16 and to employed adolescents under 16 when they become legally entitled to medical benefit. The Minister of Health in making the announcement adds that the introduction of legislation to entitle boys and girls to medical benefit immediately on becoming employed (on reaching the school-leaving age) has awaited this decision. It will now be possible to introduce the necessary Bill.

VARICELLISATION

ALTHOUGH a mild disease, chicken-pox is a troublesome one, especially in children's wards and schools; for it is very infectious, has a long incubation period, and may take a long time to heal completely. Satisfactory means of prophylaxis are still to seek; isolation and quarantine, however prompt, are seldom wholly successful if the susceptible contacts are young. Specific prophylaxis by injection of the pooled serum of convalescents has had very equivocal success; the age-groups of the children exposed, the degree of exposure, and especially the variability of the antibody content of the samples of serum which composed the pool may account for the failure of one experiment or the apparent success of another. The suggestion of Amies[1] that by means of agglutination reactions it may be possible to select sera of high antibody content instead of pooling samples of unknown titre may form a sound basis for future work. Lastly there is varicellisation, the counterpart of variolation and its contemporary since, as J. D. Rolleston,[2] points out, it was first employed by William Heberden the Elder in 1767. Rolleston remarks that "in striking contrast with small-pox, the results of the inoculation of chicken-pox have been remarkably inconstant. Willan was unsuccessful at the beginning of the nineteenth century. Steiner, however, seventy years later was more fortunate and since then occasional successes have been reported by other workers." Some of these are mentioned by Prof. J. W. Bigger,[3] who gives details of the apparently successful varicellisation of his daughter by means of the intradermal injection of the contents of vesicles derived from his son. During the 48 hours before the appearance of the boy's eruption (and therefore during the most infective phase of chicken-pox) the young adult sister had been in close contact with the school-boy brother. One insertion was made into the girl's forearm, of the fluid—a minute quantity—collected from five vesicles and suspended in saline. On the eighth day after inoculation the site was slightly red; next day a definite papule was present, and 24 hours later this had become a vesicle indistinguishable from a lesion of chicken-pox. There was no pyrexia or constitutional disturbance; the local lesion disappeared in a few days, and no generalisation took place. As to the duration of immunity Dr. Bigger expresses no opinion, but it may be said that in some at least of the recorded examples immunity was temporary, although the clinical attack following a subsequent exposure was mild. It is clear in any case that the method, like the long-abandoned variolation, is unsafe for general employment; familial protection is another matter. Dr. Bigger's only anxiety was, he says, the possibility of producing herpes zoster. The intradermal inoculation employed by him appears preferable to the puncture- or scratch-insertions used by others.

[1] Amies, C. R. (1933) *Lancet*, **1**, 1015.
[2] Rolleston, J. D. (1937) History of the Acute Exanthemata, London.

NUTRITION AND INFECTION

IN reviewing the latest report of the Foot-and-Mouth Disease Research Committee (p. 1290) we remarked that the by-products of the research done have a value of their own. One of these by-products, which requires further analysis, is the observation by Mr. J. T. Edwards, D.Sc., that well-nourished rats can be infected with foot-and-mouth disease *more* readily than those that are ill-fed.[4] Early workers at the Lister Institute and elsewhere had found that young guinea-pigs, and those in a poor state of nutrition, are more liable than others to resist this infection, and since 1932 experiments have been done at the Lister Institute and the Pirbright Experimental Station to decide how far these differences of reaction are due to nutrition and how far to size, age, race, or to other conditions. Rats were used for most of the experiments because they are not easily upset by changes of food. They were divided into groups and each group was inoculated intradermally with virus after a period on a particular diet. The two factors found to influence susceptibility and severity of illness were age and nutritional state: very young and very old animals and those

[3] Bigger, J. W., *Irish J. med. Sci.* March, 1937, p. 126.
[4] This observation was mentioned by Dr. Edwards at a sectional meeting of the Royal Society of Medicine reported in our issue of April 3rd, p. 811. Details are given in the Committee's report (pp. 195–223).

which were ill-nourished were relatively insusceptible—a finding which applied, though less definitely, to guinea-pigs and hedge-hogs as well as to rats. A third factor which lessened susceptibility was concurrent infection, possibly by lowering the general state of nutrition. Whether any one component of the diet is especially concerned was not determined; but it was noted that addition of raw liver appeared to increase susceptibility within a few days. If the rats then went back to a less nutritious diet it was more than three months before they lost their abnormal susceptibility to inoculation—a finding that could be explained by suggesting that a pro-infective factor in the liver was stored in the animal. The decreased susceptibility of the rats on an inadequate diet was found to be associated with the presence of a definite anæmia, and the addition of liver to the diet may have acted by correcting this. Whether these observations apply to farm animals has not been investigated, but Dr. Edwards gives a chart showing that in India foot-and-mouth disease in cattle is commonest at the time of year when fodder is plentiful and the animals are in prime condition, and is comparatively rare in the "hot weather" when they are often grossly undernourished.

OPIUM-SMOKING IN THE FAR EAST

ON April 22nd what is known as "the Bangkok Agreement on the Suppression of Opium-Smoking in the Far East" became effective, and another stage was reached in the effort to control or restrict narcotic addiction by inhalation. By the Hague Opium Convention of 1912 the contracting powers engaged to "take measures for the gradual and effective suppression of the manufacture of internal trade in, and use of, prepared opium"—i.e., opium to be used for smoking. They also undertook to "prohibit the import and export of prepared opium"; moreover, those powers which were not then ready immediately to prohibit such export undertook to do so as soon as possible. Little, however, was done in this direction, and indeed the Geneva Conference of 1925, having registered the opinion that smuggling in the Far East hampered "effective suppression" as had been contemplated, agreed, by protocol, to postpone the measures undertaken in 1912 until a period of not more than 15 years from a date by which the obstacle referred to had been removed. A commission of three visited the Far East and reported in 1931 to a conference at Bangkok on the situation as then disclosed. The agreement then arrived at provided for the retailing and distribution of opium for smoking to take place only from Government shops or under Government supervision. Smoking under 21 years of age is prohibited and prepared opium may be sold by the Government monopolies for cash only. Licensing, rationing, or registration of smokers is provided for. Penalties for offences are prescribed and provision is made for research as to the effects of opium-smoking and means to facilitate its cure. Reports are to be made annually to the League of Nations and a "special opium revenue account" is to be kept.

The agreement which has now come into force has been ratified by all the Governments parties to it—viz., the United Kingdom for the Malay States and Hong-Kong, Burma, the Netherlands for the Netherlands Indies, France for Indo-China, Siam, Portugal for Macao, and Japan for Formosa and Kwantung. It will be remembered that the commission of inquiry felt that opium-smoking could not be dealt with apart from opium-eating and recorded their opinion that "the radical method of dealing with illicit traffic in opium is by controlling effectively the cultivation of the poppy." This fundamental question of the limitation of the production of the raw materials is now, at long last, under instruction of the Council and Assembly, engaging the attention of the League of Nations.

THE PHARMACEUTICAL SOCIETY'S NEW HOUSE

THE Council of the Pharmaceutical Society has approved the architect's plans of a new building for the society's headquarters. The site which has been acquired has a main frontage in Brunswick-square of 237 feet and a minor frontage in Hunter-street of 113 feet. The architect is Mr. Herbert J. Rouse of Liverpool; he built Martin's Bank Building in that city and other edifices which have attracted admiration. The structure provides six floors of accommodation above the street level with general service rooms of all kinds in a basement. By the use of separating courts for light, three wings are provided, each enjoying a maximum light exposure on three of their sides. The plans of the third, fourth, and fifth floors show that continuous depths of laboratory accommodation are provided along the whole length of the front served by corridors lighted from the courts. The school of pharmacy occupies the whole of the third and fourth floors, together with the portions of the ground, first, and second floors which make up the east wing of the building. The fifth floor is utilised for pharmacology, including a nutrition department. The assembly hall, library, and main lecture theatre occupy the centre of the ground and first floors, and the council suite is placed centrally on the second level. On the ground floor a lofty vestibule at the entrance is flanked on the right and the left by the assembly hall and library respectively, while directly facing the vestibule is a lecture theatre to seat 250 persons. The assembly hall itself extends over the height of two ordinary floors and will seat 400 persons. The library is also a room of two floors in height, and is planned with bays in which are placed small tables for reading. The west wing is devoted to the publications and editorial department. The estimated cost of the building is £200,000.

CONDITIONED DEFICIENCY DISEASE IN ANIMALS

IT is now known that man may suffer from many deficiency diseases even when his diet is in every way adequate. The fault lies in defective gastro-intestinal function, which prevents the use of the food by the body—in other words, there is a conditioned deficiency. In Addisonian pernicious anæmia lack of the hæmopoietic principle is due to a failure on the part of the stomach to excrete the intrinsic factor. In hookworm anæmia, though the diet is often deficient, the presence of parasites is held by some to play some part in preventing the proper utilisation of iron. Important studies of a wasting disease in sheep known as "Border pining" recently made[1] by W. L. Stewart and his colleagues suggest that this may also be a conditioned deficiency disease due to parasites. That pining was in some way due to diet was suggested as long ago as 1831 by James Hogg, the Ettrick shepherd, because he found that it was improved by changing the pasture. Since its most characteristic feature was a severe anæmia it was formerly considered that it was due to a lack of

[1] Stewart, W. L., and Piercy, S. S. (1935) *J. comp. Path.* **48**, 157.

iron in certain pastures. It was found that iron content of pastures was on the whole lower in pining areas than elsewhere. On the other hand, in the Border country at least, the provision of iron-containing licks for sheep has not been effective in preventing the disease. Stewart and his colleagues therefore undertook a further study [2] of the condition and have made interesting observations. The constant symptoms are emaciation and an anæmia that appears to be normocytic in type, both red cells and hæmoglobin being equally affected. This might in itself suggest that lack of iron alone is not the cause of the disease since simple iron-deficiency anæmia is usually hypochromic. Examination of the fæces showed a higher proportion of ova in pining sheep than in normal controls, and the egg index varied inversely with the severity of the disease and the intensity of the anæmia. Nematode parasites were found post mortem in the stomach and intestines of all sheep examined, the largest number being present in animals seen during the summer, when pining is at its worst. In 13 cases there was damage to the gastric mucosa, the typical lesion being a thickening and roughening of the membrane. Stewart believes that the sheep surviving a summer attack of pining remain in poor condition and often die of malnutrition and broncho-pneumonia during the winter. At this stage the parasites may be few and post-mortem examination may fail to give conclusive evidence of the important part they play. This disease at once suggests a possible analogy with hookworm anæmia in man. Damage caused to the stomach and intestines by the parasite, of which Stewart has found histological evidence in the sheep, may result in deficient absorption of iron especially if the amount in the diet is low.

HÆMOPHILIA RECORDS

THE clinical history and description of 98 patients suffering from hæmophilia, with a series of 75 pedigree charts, forms the text of a monograph recently published by Dr. Carroll Birch.[3] It would be difficult to overestimate its value. It supplies such details of a unique series of unselected cases, personally examined, as enable the reader to get an idea of the case-to-case variations in the course of the disease and of the accidents to which individual sufferers may be subject. Particulars of 113 cases of death in hæmophilics are given, showing that no fewer than 57 per cent. of the persons affected died during the first five years of life. Dr. Birch finds no uniformity in the variation in the severity of the disease at different periods of life; some patients appear to have more severe and more frequent hæmorrhages as they grow older; of others the converse was reported. Many factors may contribute to fluctuation in the severity of the disease at various periods during life. The pedigree charts will be welcome to geneticists; only those who have attempted the investigation of family histories can fully appreciate the labour involved in this section of the monograph. Pedigrees worked out as a routine measure, in every case of a disease seen, have not only their own particular interest but reveal much about the genetical character of a condition which can only be discovered from material collected in this way. Discussing the occurrence of hæmophilia and colour-blindness in different members of the same family, Dr. Birch writes that the combination of these two anomalies in one male is theoretically impossible. Geneticists are likely to question this statement—indeed, several pedigrees have been recently published which demonstrate a very close linkage between the two conditions in certain families.

Good pictures and diagrams illustrate this monograph and Dr. Birch deserves thanks for a valuable contribution to the subject of hæmophilia.

[2] Stewart, W. L., and Ponsford, A. P. (1936) *Ibid*, **49**, 49.

[3] Hemophilia. Clinical and Genetic Aspects. By Carroll La Fleur Birch. *Illinois Medical and Dental Monograph*. Vol. I. No. 4. Published by the University of Illinois Press. 1937. Pp. 151. $2.00.

PLANTAIN HAY-FEVER

IN a group of 180 sufferers from hay-fever Blumstein and Tuft [1] found 14 (7·7 per cent.) who were sensitive to plantain pollen, and among 70 cases of spring hay-fever there were 5 in which plantains appeared to be the sole exciting cause. The observations recorded suggest that the "English" narrow-leaved and the "common" broad-leaved plantain—the lesser and the greater plantain respectively—contain a common antigenic factor quite distinct from that found in Timothy grass or ragweed. The dry pollen nasal test was found to be an invaluable aid to the diagnosis of plantain hay-fever and Blumstein and Tuft believe that intractable cases of spring hay-fever will often yield to treatment if plantain extract is included in the injections of grass-pollen extracts.

THE RISE OF THE TUBERCULOSIS DISPENSARY

FIFTY years ago a young graduate started in three small rooms at 13, Bank-street, Edinburgh, the Victoria Dispensary for Consumption. When he founded it Dr. Robert Philip, as he then was, probably did not himself realise what a world-wide development of the antituberculosis organisation he had inaugurated. There are times in the history of most movements when an entirely new idea is conceived and progress is rapid, and there are times when the movement settles on its lees and becomes stagnant. The years 1882 to 1887 were a turning point in the history of the fight against tuberculosis, and Sir Robert Philip, looking back upon it after fifty years, may well be proud of his share in it. The period which preceded it marks the growth of the special voluntary hospitals. Beginning with the foundation of the Royal Chest Hospital in 1814, some sixteen hospitals for tuberculous diseases had been founded in the British Isles by the time the Victoria Dispensary saw the light. Some of them came into being for the purpose of helping the patient with advanced disease whose lot, with nothing but the old poor-law infirmary to look forward to, was gloomy in the extreme; others, regrettably few in number, definitely set out to treat incipient consumption. But whether the early or the advanced case was the object, the conception of the hospital was the sick person and him alone. The outstanding advance of the dispensary movement has been not merely the picture of a patient with physical signs but the realisation of the sick and infective person in his environment of home and community. From this time onwards there has been a new conception of tuberculosis, a chronic infective disease in its setting of family and immediate surroundings. And with this new conception came the idea of the contact and the search for the primary case in each family focus of infection.

Philip's ideas were only slowly followed up and Great Britain, the country of its birth, had to

[1] Blumstein, G. I., and Tuft, L., *J. Amer. med. Ass.* May 1st, 1937, p. 1500.

wait until the report of the Astor Departmental Committee in 1912 before the dream of its founder was realised. Flick has pointed out that the period of voluntary hospital development in this country saw a marked decline in tuberculosis mortality. In 1848 the death-rate was 2·97 per 1000 living; in 1888 it had fallen to 1·54. Now it has been nearly halved again, and although these declines in mortality cannot be attributed to any one agency, there can be no doubt whatever that the dispensary movement has justified the faith of its founder.[1]

IN DEFENCE OF RESEARCH

Prof. G. Grey Turner, professor of surgery in the University of London at the British Postgraduate Medical School, who has recently been elected a vice-president of the Research Defence Society, will deliver the eleventh Stephen Paget memorial lecture at the annual general meeting of the society which is being held on Tuesday, June 15th, at 3 P.M., at the London School of Hygiene and Tropical Medicine, Keppel-street, W.C. Prof. Grey Turner will speak on what research owes to the Paget tradition, and the chair will be taken by Lord Lamington, president of the society, who will be supported by Sir Arthur Stanley and Prof. A. V. Hill, F.R.S. Members are invited to bring their friends to the meeting. The society may be addressed at 11, Chandos-street, Cavendish-square, London, W.1.

INDUCTION AS A ROUTINE

Mathieu and Holman[2] of Portland, Oregon, compare the results in some 750 consecutive cases in which premature labour was induced, with those in another 750 contemporary cases in which the onset of labour was left to Nature. A study of these two series should (but may not) leave the reader convinced that no woman ought to be allowed to go into labour spontaneously. In the series in which induction was performed, the maternal mortality (one death) was half what it was in the other group, while the fœtal mortality (corrected) was in the same proportion. The length of the first stage of labour was considerably diminished in the induced series, and there was no difference in the morbidity-rate. The method of induction used is said to have been completely successful. At 7 A.M. an enema is given, followed at 7.30 by a variable dose of pentobarbital. The patient is asleep in half an hour, and pituitary extract in 3-minim doses is injected at half-hour intervals afterwards. If labour has not started after the third or fourth injection and the membranes are still intact, they are ruptured artificially. (It should be noted that this is not advised if there is a malpresentation or if the fœtal head is not engaged.) The injections of pituitary extract are then continued until the patient is definitely in labour. In Mathieu and Holman's series there were no untowards results—no pituitary shock, no premature separation of the placenta, no precipitate labour—and it is somewhat ironical that the only case of rupture of the uterus was in the series of controls in whom labour was not induced. The indications for induction are stated most briefly as "those cases which promised trouble, the toxæmias, large babies, contracted pelvic outlets, apprehensive and nervous patients, &c." The results seem to have been excellent, yet we are not altogether surprised that many of the speakers at a meeting to which they were related commented adversely upon the procedure, and suggested that it is better to allow labour to start spontaneously unless there is some definite reason for the termination of pregnancy. Be this as it may, certain facts do demand careful attention. The method was employed over a large number of cases, and the incidence of complications was negligible. Pituitary extract was used as a routine but in small repeated doses, and its administration was stopped as soon as labour pains were established. There was no report of uterine inertia, and this is of interest in view of the attention lately drawn to the high incidence of inertia of the uterus in women in whom labour had been started by the insertion of bougies. The advisability of administering pituitary extract during induction of labour needs further examination.

PASTEURISATION AND THE NUTRITIVE VALUE OF MILK

THE dangers of raw milk as a vehicle for the conveyance of disease are well known and repeatedly emphasised in our columns, as well as the safety given by efficient pasteurisation. These are demonstrable facts that cannot be gainsaid; so the opponents of pasteurisation, who fear its advent chiefly because of the disturbance they believe it will cause in present methods of distribution, have to fall back on the argument that heat reduces the nutritive value of milk. They are apt to talk vaguely of the possible presence of some component that might be affected by pasteurisation, but they cannot isolate or define it. A valuable report issued by the Milk Nutrition Committee[1] provides no reason for thinking that milk contains any such factor and shows that there is little difference between the nutritive value of raw and pasteurised milk. Further evidence may be found in a report on the nutritive value of raw and pasteurised milk for calves by Prof. Wilson, Prof. Minett, and Mr. Carling.[2] Their experiment, which lasted over two years, was made with milk from a healthy shorthorn herd. Calves as they were born were allotted alternately, without any selection, into two groups, one fed on the raw milk and the other on the same milk after pasteurisation. Mixed morning milk was used, and it was given in measured quantities in strict relation to the weight of the calves. This impartial allocation was not perfectly satisfactory and in fact operated against the pasteurised group because fewer bull calves happened to be allocated to this group while it included two weaklings who died from other causes. Apart from these two, all the animals throve well and showed no signs of rickets or anæmia. The average increase in weight over the eight-week period for the animals in the raw-milk group (25 calves) was 53·72 lb.; in the pasteurised-milk group (23 calves) it was 53·86 lb. Incidentally the highest individual gain among the bull calves and also among the heifer calves was in an animal fed on pasteurised milk. No physical differences could be noted by any observers between the animals in the two groups. Prof. Wilson and his colleagues conclude that "there is nothing in these results to suggest that the nutritive value of pasteurised milk for calves is in any way inferior to that of raw milk." Earlier studies have suggested that one effect of pasteurisation is to diminish the availability of the calcium and phosphorus in milk.

[1] A tribute is paid by the Edinburgh medical school to Sir Robert Philip's work in the *Edinburgh Medical Journal* for May, 1937.

[2] Mathieu, A., and Holman, A., *Amer. J. Obstet. Gynec.* Feb., 1937, p. 268.

[1] See *Lancet*, May 15th, 1937, p. 1179.

[2] Wilson, G. S., Minett, F. C., and Carling, H. F. (1937) *J. Hyg.* **37**, 243.

This could have no influence upon its nutritive utility for children, since the need of children for these minerals is less than that of calves, judging by the lower content of calcium and phosphorus in human milk. On the other hand, if the diminution were really substantial it would presumably affect the growing calf, and the fact that it did not do so—which surprised the investigators—makes it clear that this objection to pasteurisation of milk for growing children has no force behind it. Nor, in fact, have any of the other objections, and it is more than time that the medical profession, realising the importance of milk-borne infection, ranged itself solidly behind the demand for a safer supply.

E. L. EHLERS

THE three diseases with which the name of Prof. Ehlers is most closely associated are syphilis, leprosy, and scabies. He was president of the Danish Association for Combating Venereal Disease and also for seven years president of the International Union against Venereal Disease. His interest in leprosy helped to make him a great traveller, and he did much to lighten the lot of the leper in many parts of the world, from Iceland to the West Indies. In 1897 he was the organiser of the first International Leprosy Conference, in Berlin; and from 1900 to 1914 he was the chief editor of an international publication on leprosy. His most important contribution to scabies was its ambulant treatment. A welcome visitor in many countries, it was particularly in France that he was known and appreciated. He died on May 6th at the age of 74.

THE PHYSICAL BASIS OF STUFFINESS

RECENT fluctuations from arctic to equatorial climatic conditions should stimulate interest in methods now available for the control of indoor temperature and humidity. The subject was discussed at the Royal Society of Medicine on May 28th (see p. 1401) when special consideration was given to the requirements of ships in the Royal Navy and in factories. In this country, where extreme conditions are rare, regulation of humidity is not usually employed in factories as it is in the United States, attention being concentrated on ventilation, temperature, and the extraction of dust. In a recent article [1] C. P. Yaglou of Boston considers the physical and physiological principles of air conditioning and collects a number of interesting observations. Although the percentage of CO_2 in the air may be used as a convenient guide to atmospheric purity this gas does not in itself produce discomfort in the concentrations ordinarily met with in stuffy rooms; imponderable amounts of organic matter appear to be far more effective in this respect; this observation has the support of experiments on the isolated frog's heart in which it was found that the weakening action of expired air was greater with old and sick persons than with the young and healthy. Dr. Yaglou considers that the preference which still exists for window ventilation may be due to the monotony of the air movements produced by mechanical systems of ventilation which are found to be less stimulating than oscillating gusts of air coming through an open window. Dr. Bedford's new book [2] on ventilation contains a chapter on air conditioning in which a clear account may be found of the apparatus used for filtering, warming or cooling, humidifying or drying atmospheric air. Dr. Bedford also notes the importance of organic matter in producing a disagreeably stuffy atmosphere; he quotes a table compiled by Dr. Yaglou from which it appears that the number of cubic feet per minute required by a group of people is inversely proportional to the frequency with which they take baths. Thus school-children of the poorer class require 38 cubic feet per min. each as compared with only 18 for children in a higher social grade.

[1] *J. Amer. med. Ass.* May 15th, 1937, p.1708

[2] Modern Methods and Principles of Ventilation and Heating. By T. Bedford, D.Sc., Ph.D., Investigator to the Medical Research Council's Industrial Health Research Board. London: H. K. Lewis and Co. 1937. Pp. 85. 4*s*. 6*d*.

AGAINST RHEUMATISM

REMARKING that most services are promoted by the force of public opinion, Capt. G. S. Elliston, M.P., at the Margate Congress last month, said that first among the conditions now needing attention is chronic rheumatism. No steps, he said, commensurate with its importance have yet been taken; and he was right. Since he spoke, the welcome news has come of a gift of 10,000 guineas by Mr. Alexander Maclean to the Empire Rheumatism Council to finance a rheumatism research unit, together with a promise of a further £2500 from the same source. The Council was constituted last November, when Lord Horder, as president, urged the need for a comprehensive research campaign for which the help of prominent citizens throughout the British Empire would be sought. In congratulating the Council on the success already achieved we take the opportunity of mentioning a modest appeal made some time ago for another and related enterprise. The International League against Rheumatism has done much to inspire the present interest in rheumatic diseases: besides maintaining a quarterly journal, an information bureau, and a library it has held five large congresses in European capitals, in which the medical profession and the governments concerned have shown great interest. The sixth congress is to be in England next year; and it is somewhat unpleasant to reflect that the English national rheumatism committees have hitherto not been in a position to give any financial support to the League's work, which has been supported, throughout the depression, chiefly by the smaller countries and, in emergency, by the honorary secretary. The League is likely to receive adequate support henceforward, but having missed the aid that might have been expected from this country it has barely struggled through the years of difficulty and must be restored to security. If any of our readers have rheumatic patients who happen to retain some faith in the value of international coöperation the appeal might fittingly be passed on to them. Of the £1000 asked for, about a fifth has been secured and the situation is one in which a small sum may do substantial good, since it will make possible the continuance of work that was formerly, and will again be, financed by regular national contributions. Cheques should be made payable, and sent, to Barclays Bank Ltd., 54, Lombard-street, London, E.C.3.

EPIDEMIOLOGY OF THE BASQUE CAMP

THE arrival of 4000 refugee children from Bilbao confronts us with an old but ever-fascinating problem. Should the "herd at risk" be kept concentrated or scattered? In this particular case, should the Basque children be split up into units of not less than 50 or so and moved into the various homes prepared for them in different parts of the country; or should they, on health grounds, remain in their original camp at Eastleigh? If the children were experimental herds

of mice, it would seem better that they should be kept together, provided no new additions were made to the herd, rather than that they should have the chance of infecting other "herds" all over the country. But the children are not mice; and though their health record so far is good their camp was designed for a considerably smaller population and, as the House of Commons was told last Monday, it is highly desirable that the number of children there should be reduced as speedily as possible. The objection raised is that they would be going to homes and institutions some of which already contain healthy children and have no special medical arrangements in operation, such as have been made at the camp. Again, in theory, the argument seems to be chiefly in favour of delaying dispersal. But what are the actual dangers to be feared? The children were all medically examined before embarkation and those who took responsibility for the examination, Dr. Richard Ellis and Dr. Audrey Russell, give good reason for thinking that the risk of importing trachoma is by no means as serious as has been suggested. Two cases of diphtheria and three of measles have arisen among the 4000 children, but have been suitably isolated. And finally, there have been six cases of typhoid fever. All of these, however, have appeared within the incubation period since leaving Spain, and presumably there is little likelihood of infection occurring after arrival in England. Hence we are not considering the dispersal of an unhealthy "herd" as in the poliomyelitis outbreaks of 1926 and 1932 [1] but of a healthy one. The visitors to the Bournemouth, Poole, and Christchurch district, who scattered back to their homes during the 1936 milk epidemic, for example, presented a much greater risk to the country. At Eastleigh each child is to have three full medical examinations before leaving the camp.

The Ministry of Health, though it has no direct responsibility, has been asked for its advice and has been in direct touch with the camp authorities through its medical officers. Its advice is, apparently after some hesitation, to allow evacuation of children going direct to empty homes and institutions where they will not be in contact with other children—provided that the medical officer of health of the district is prepared to accept them. The remainder are being inoculated against typhoid and will be evacuated when immune. This advice we regard as sound. Medical officers of health are not likely to grudge any extra trouble the present policy may entail, nor will they want to put unnecessary obstacles in the way of colleagues who have done and are doing a fine piece of humanitarian work.

THE Inter-Departmental Committee appointed in April, 1936, to inquire into the restoration of working capacity in persons injured by accidents has made an interim report (H.M. Stat. Office, 4*d*.). The object to be aimed at is the covering of the country with a network of "fracture services" attached to existing hospitals, whether voluntary or controlled by the local government authorities. A "model" scheme has been prepared by the committee, capable of adaptation to the varying circumstances and needs of different localities and areas. The maximum size of a fracture clinic compatible with an efficient unified control is put at one capable of dealing with 3000 to 3500 cases a year, of which about one-third would, on a general average, need in-patient treatment, involving the provision of, say, 40 beds. The needs of rural areas would be met by linking them up with a fracture clinic at some convenient centre to which cases could be transferred. The committee offers its assistance in any difficulties presented by the application of such a scheme to local circumstances. Sir Malcolm Delevingne has presided over the committee, whose medical members are Miss Muriel Bywaters, Mr. W. A. Cochrane, Dr. T. Ferguson, Prof. E. W. Hey Groves, Dr. J. F. E. Prideaux, Mr. H. S. Souttar, and Mr. A. C. T. Woodward.

[1] See *Lancet*, 1926, **2**, 1070; 1932, **2**, 903, et seq.

THE inquiry into the physical, psychological, and genetic aspects of mental deficiency carried on in the research department of the Royal Eastern Counties' Institution at Colchester has received valuable aid from the trustees of the Rockefeller Foundation. Hitherto the research department, under Dr. Lionel Penrose, has been financed by the Medical Research Council, the Darwin Trust, and by the Institution itself. Recently also a generous donation of £2200 was made by the Hon. Alexandrina Peckover towards the cost of a new laboratory and research offices provided by the Institution. Now the trustees of the Rockefeller Foundation have opened the way to further developments by making a grant at the rate of £600 per annum for five years to provide additional research workers and a non-recurrent grant of £700 towards the cost of laboratory equipment.

Sir THOMAS NEILL, who died last week at the age of 81 years, was one of the three insurance commissioners appointed by Mr. Lloyd George when the Act of 1911 came into force. He had had much to do with framing the scheme itself from his long experience with the Pearl Assurance Company, and after serving as commissioner he became chairman of the National Amalgamated Approved Society. This post he held until his retirement last year, combining it with many other important executive offices. His judgment was sound, and in conference his opinion was influential and decisive. He had a slight stutter, but there was nothing hesitating about his mind, which worked like a well-oiled machine. His decisions, which were nearly always right, were quickly made and tenaciously held; though keen and firm in business he was one of the kindest-hearted of men, as his staff well knew. He found difficulty in passing street collectors on flag days, and on Queen Alexandra's day he would arrive at his office richly decked with roses. He will long be regretted by those who worked with him.

AN account of the memorial to the late Sir Walter Morley Fletcher, printed for the trustees of the memorial fund at the University Press, Oxford, has been issued to all the subscribers to the fund. It is embellished by two illustrations, one of which shows Miss Dora Clarke's posthumous portrait bust of Walter Fletcher, photographed from the clay model, the other a corner of the library of the National Institute for Medical Research with the finished bronze in position.

LEWES VICTORIA HOSPITAL.—This institution, whose accommodation has lately been doubled, needs an increased income of about £400 yearly if the work is to go on successfully. A nurses' hostel has been built and the hospital extensions proved more complicated and expensive than had been expected. Private wards had to be closed last year because of the work and the income of the hospital suffered in consequence.

SPECIAL ARTICLES

THE LISTER INSTITUTE

A YEAR'S INVESTIGATIONS

On June 2nd the governing body of the Lister Institute of Preventive Medicine, London, presented its annual report, signed by Prof. William Bulloch, F.R.S., as chairman. The year has seen several changes in the staff working at the institute under the general direction of Sir John Ledingham, F.R.S. Dr. E. Weston Hurst left in September to become director of the Institute for Medical Research at Adelaide; Dr. C. Russell Amies (formerly a research fellow in bacteriology) and Dr. A. S. McFarlane (research fellow in biophysics) have joined the staff; and on the departure of Mr. J. M. Gulland, D.Sc., in the autumn Mr. A. R. Todd, Ph.D., joined the biochemical department, of which Miss M. G. Macfarlane, Ph.D., is now also a permanent member.

The following notes describe some of the many inquiries pursued during the year.

VIRUSES

Ætiology of rheumatic diseases.—Dr. G. H. Eagles, with the assistance of Dr. P. R. Evans, Dr. J. D. Keith, Mr. A. G. Timbrell Fisher, and Dr. W. H. Bradley, has continued the study of a possible virus agent in acute rheumatism, rheumatoid arthritis, and chorea. Specific agglutination tests with the sera of patients suggest that these diseases have in all probability a common ætiological factor, though other factors such as concomitant infection by streptococci probably play a part. Infection experiments have not so far given unquestioned confirmation of serological findings, but in two monkeys grave cardiac involvement has followed intrapericardial injection of rheumatic virus-body suspension. In one instance the suspension was inoculated alone; in the second it was inoculated with a small dose of a streptococcal toxin. In both cases myocardial damage was revealed by histological study, but the typical Aschoff node was not demonstrated. Results of control experiments indicate that toxin alone is probably not responsible for the myocarditis. Experiments are under way to discover the cause of the prolongation, in monkeys, of the P–R interval, which is considered to a large extent pathognomonic of early rheumatic carditis in man.

Dr. C. R. Amies has continued his investigations of the tumour-producing agents in filtrates of *avian sarcomata*. His results confirm the fact that fowls bearing Rous sarcoma No. 1 develop antibodies for the tumour agents. This immunity reaction can be demonstrated by neutralisation tests and also by agglutination and complement-fixation reactions. It has now been found that the sera of rabbits which have been hyperimmunised with normal fowl protein exhibit strong neutralising activity against these purified suspensions of the Rous No. 1 agent. The observations, so far as they go, are held to confirm experiments carried out some years ago by W. E. Gye and W. J. Purdy, on which their conception of the dual nature of the infective complex is largely based.

For some time Sir John Ledingham has been investigating the relationship of the viruses of *rabbit myxomatosis* (Sanarelli) and *rabbit fibroma* (Shope). It has been found that animals infected with the fibroma virus develop agglutinins for myxoma but often little or none for fibroma until a dose of myxoma is given, when agglutinins for both appear in the serum. Dr. E. W. Hurst passed the myxoma virus through the brains of rabbits and obtained a variant whose capacity to cause death after intracerebral inoculation was much reduced. The discovery of this variant should greatly facilitate further inquiries, for it is now possible to study animals that have recovered from myxoma without having to give them the fibroma virus first.

Staining of elementary bodies.—Dr. M. Gutstein (Berlin) has elaborated a method for rapid staining of the larger virus bodies, based on the use of basic dyes in alkaline solution. No mordant is required and excellent microscopical pictures are obtained.

Vaccinia.—Dr. M. H. Salaman has shown that the virus-neutralising power of an antivaccinal serum can be removed by absorption with a sufficient dose of washed elementary bodies, but not by absorption even with large doses of the soluble antigen. On the other hand, precipitins and agglutinins could be absorbed from such serum in varying degrees by the bodies and by the soluble antigen.

ANTIGENIC CONSTITUTION AND IMMUNISING PROPERTIES OF BACTERIA

The Vi antigen of typhoid bacillus.—Mr. A. Felix, D.Sc., with Miss R. M. Pitt, has continued the investigation of the properties of the Vi antigen of *Salmonella typhi*. The conclusion that only strains containing both the O and Vi antigens possess the highest degree of virulence of which this organism is capable has been further strengthened. In spite of numerous attempts, a method of preparing anti-typhoid vaccine which would enable the Vi antigen to be preserved in its most effective form has not yet been devised. Dr. Felix, in coöperation with Dr. W. D. Nicol, tested the antibody response in 50 persons who had been given three doses of an alcohol-killed typhoid vaccine by the subcutaneous route. A marked increase in the O antibody was observed in all those inoculated, and a significant increase in the Vi antibody in about half. But re-examination of the vaccine after storage for half a year, with or without the addition of phenol or tricresol, showed that the vaccines had almost entirely lost their capacity of stimulating formation of Vi antibody in the rabbit. Dr. Felix has also been investigating the possible value of Vi agglutination in the detection of typhoid carriers. Sera from 45 carriers have been examined and the results suggest that Vi agglutination has a definite place in the routine diagnosis of typhoid carriers. It is noteworthy that all the 25 strains from chronic typhoid carriers examined were found to contain Vi antigen.

Dr. H. L. Schütze and Dr. P. A. Gorer are continuing their investigations of *genetic constitution and immunity*. Working with two pure lines and two selected lines of mice, they have tested resistance to infection with *Salmonella typhi-murium* and *S. enteritidis*; also response to immunisation and the facility with which H and O antibodies are produced. Significant genetic and sex differences have been observed in resistance to infection and in ability to produce antibodies, but there seems to be no simple relationship between such ability to produce antibodies and natural resistance to infection.

Dr. Gorer has studied the genetic basis of antigenic differences demonstrable in the erythrocytes of mice with special reference to the *antigenic basis of tumour transplantation*.

Two such antigens were found to depend upon single dominant genes. A sarcoma arising in a pure line of albino mice was found to be transferable to all other members of the line and certain hybrids derived from it but not to unrelated mice. It was found that all hybrids susceptible to grafts of the tumour possessed an antigen in their erythrocytes derived from the albino ancestors. If the antigen was absent the tumour invariably regressed. The sera of mice in which the tumour has recently regressed may often be shown to contain agglutinins for the erythrocytes of albinos. It was concluded that the fate of a transplanted tumour largely depends upon iso-antigenic differences between the transplant and tissues of the host.

"MALE" SEX HORMONES

Examination of the effects of the sex hormones has been continued by Dr. V. Korenchevsky with the assistance of Mrs. M. Dennison and Miss K. Hall. The most remarkable property of the male sex hormones studied is their bisexual function—i.e., the property of stimulating the development of the sexual organs of both sexes in normal rats and bringing about a return of the atrophied organs of gonadectomised animals to, or towards, the normal condition. But whereas the restorative effect on all the sexual organs of the male rat is complete, in females the complete effect was obtained only when testosterone propionate was administered simultaneously with the female hormone (œstrone). It is also important to note that with œstrone alone it was found impossible to obtain (with the doses examined) a complete recovery of all the atrophied sexual organs. The "male" hormones investigated may be arranged in descending order of activity as "female sexual stimulators" as follows: (1) testosterone propionate, (2) testosterone, (3) androstanediol, (4) androstenediol, (5) androstenedione, (6) transdehydroandrosterone, (7) androsterone. In ovariectomised rats, with a few exceptions, the male hormones produce changes—chiefly in the vagina but in some cases (testosterone propionate) in both vagina and uterus—similar to those seen during pregnancy. These are most pronounced when the male and female hormones are injected simultaneously.

Unlike the other male hormones, testosterone propionate has a stimulating though slowly decreasing action on the sexual organs for as long as 9 days after injection. For this period it completely maintains its effect on the adrenals, while the katabolic effect on the metabolism, as shown by the changes in the body-weight, even increases. This property of testosterone propionate gives it an especial therapeutic value, since results can be obtained with injections as infrequent as once in 10 or even perhaps 14 days.

RENAL FUNCTION.—BLOOD COAGULATION

Prof. P. Ellinger and Dr. A. Lambrechts (Liége) have studied the localisation of the *glycosuric action of phloridzin*. They find that phloridzin interferes with the passage of certain substances from the lumen into the epithelium of the proximal tubules. The mechanism of this blockade has, however, not yet been ascertained.

The cerebro-spinal fluid in acromegaly.—Prof. Ellinger, in collaboration with Dr. Dorothy Hare and Dr. S. Levy Simpson, has studied the influence of the cerebro-spinal fluid of an acromegalic woman on the urinary chloride and water excretion of rabbits, injected subcutaneously with the fluid, and given water per os simultaneously.

A definite increased rate of chloride elimination resulted, but normal water diuresis was unaffected. On the other hand cerebro-spinal fluid from normal people and sera from the acromegalic patient and other control patients had no action either on chloride excretion or on diuresis. This effect was less after irradiation of the pituitary gland, which also produced clinical improvement. In control experiments a standard solution of pitressin gave an antidiuretic effect as well as an increased rate of chloride excretion. It is concluded that the spinal fluid of the acromegalic patient contained sufficient amounts of a hormone of the posterior lobe of the pituitary gland, but so far it has not been possible to decide whether the antidiuretic and chloride eliminating effects are due to different hormones or whether the antidiuretic effect of the posterior lobe hormone was masked by that of some other substance in the spinal fluid of this patient.

Dr. J. O. W. Barratt has completed his investigation of *anticoagulant action*. It has been found that sodium chloride, chlorazol, and heparin resemble hirudin in producing their anticoagulant effect upon thrombin: no action upon fibrinogen could be observed. With improved technique it was possible to obtain an index of anticoagulative power and also to calculate coagulation-times corresponding to varying concentrations of anticoagulant.

OBSERVATIONS WITH ULTRACENTRIFUGES

The two ultracentrifuges provided by a grant from the Rockefeller Foundation were completed in time for the visit of the designer, Prof. T. Svedberg of Upsala in September (see *Lancet*, 1936, **2**, 874). The *smaller equilibrium centrifuge* which runs at speeds up to 18,000 r.p.m. has been found to be adaptable to the study of certain viruses and to the recently discovered virus proteins. Excellent sedimentation photographs have been obtained of tobacco-mosaic virus protein and a study of the factors which determine its homogeneity in respect of molecular size is in progress. The behaviour of the blue respiratory protein (hæmocyanin) of the blood of *Helix pomatia* has been exhaustively studied recently by Svedberg and may be used as a model of homogeneity in a substance of molecular weight of the order of millions. Preparations of elementary bodies from rabbit and sheep vaccinia virus have been investigated by means of the photographic technique, and unexpected facts have come to light; preparations of herpes virus have also been examined. A form of micropipette has been designed which enables fluid at different levels in the centrifuge cell to be accurately removed after the run.

The *high-speed ultracentrifuge*, running at the maximum speed for routine use (60,000 r.p.m.), has been used to study the sedimentation of hæmoglobin, serum albumin, and serum globulin. It is also being used at lower speeds to investigate the behaviour of visual purple. On a visit by Prof. Svedberg in February, the velocity centrifuge was run up to the maximum speed considered safe (65,000 r.p.m.); no trouble was experienced, this speed was maintained for four hours, and opportunity was taken to analyse a specimen of horse serum.

NUTRITION

Vitamin A.—A collective investigation has been organised by Miss E. M. Hume, as secretary of the Vitamin-A Subcommittee, in which ten different laboratories have participated to compare the results of biological and spectrographic estimations of vitamin A. The results showed a satisfactory degree of concordance and gave no support to any alteration of the value 1600 adopted for the conversion factor at the 1934 International League of Nations Vitamin Standardisation Conference; but certain discrepancies leave a possibility that the spectrographic method

will have to be abandoned and vitamin-A standardisation made to depend only on the biological test.

Vitamin B_1.—Dr. F. Vivanco (Madrid) has investigated a specimen of "oryzanin," the crystalline vitamin-B_1 hydrochloride prepared from rice polishings provided by Prof. Suzuki. An average amount of 3·3 γ of the crystalline material had a potency equal to that of 1 international unit of vitamin B_1.

Ætiology of pellagra.—Miss Hariette Chick, D.Sc., has collaborated with Mr. T. A. Birch and Sir Charles Martin, F.R.S., at the Department of Animal Pathology, Cambridge, in experiments on the nutritive defects of maize.

Young pigs were the experimental animals. The diet given contained over 80 per cent. ground whole white maize supplemented with pearmeal and a small amount of purified casein to increase the protein content, extra salts and cod-liver oil. Dogs maintained on this diet develop a disorder known as nutritional black tongue, characterised by anæmia, diarrhœa, and stomatitis with necrotic changes in gums and tongue, which is held by many to be the analogue of human pellagra. After about six weeks on this diet the young pigs ceased to grow, showed a loss of weight, anæmia, and severe diarrhœa, and died unless the diet were changed. They showed no skin sensitisation to sunlight. The disease was prevented if 4 per cent. yeast was included in the diet or if the maize was replaced by a mixture of wheat and barley; it was cured in a dramatic manner when yeast or an autoclaved protein-free yeast extract was added to the diet. These facts pointed to a deficiency in maize of some heat-stable constituent in the yeast extract—e.g., some constituent of vitamin B_2. Preliminary tests with flavin gave negative results and trials will now be made of other heat-stable fractions and preparations from yeast extract. The above black-tongue diet has been found relatively satisfactory for growth and maintenance of rats so that the missing anti-black-tongue (? anti-pellagra) factor appears either to be non-essential for the rat or to be adequate for this species in small amount. The pig, therefore, appears to be a more suitable experimental animal.

In continuation of his work in this field Prof. Ellinger, together with Dr. W. Beckh and Prof. T. D. Spies (Cincinatti) has studied porphyrin excretion in non-endemic pellagra. In 10 out of 14 cases of "alcoholic" pellagra observed at Lakeside Hospital, Cleveland, U.S.A., an increased porphyrin excretion (coproporphyrin) was observed, the intensity of which showed a rough relation to the severity of the clinical symptoms. Dr. Chick has been examining the nutritive value and light-sensitising properties of buckwheat in the hope of finding the causes of the light sensitivity characteristic of pellagra. A small daily ration (0·1 g.) of the dried flowers caused a high degree of light sensitivity in albino rats, and Mr. T. F. Macrae, Ph.D., is collaborating in attempts to isolate the active substance.

Wheat and bread.—Miss A. M. Copping has continued the investigation begun by M. H. Roscoe in 1935. As was to be expected more vitamin B_1 and B_2 was found in wholemeal flour and bread than in white flour and bread. The last two, however, proved to be unexpectedly rich in vitamin B_1 and control experiments with ground polished rice, in which the rats developed characteristic nervous symptoms of vitamin-B_1 deficiency, emphasised the difference between polished rice and white flour in this respect. The content of flavin was low in both types of flour and breads, the white flour and bread being definitely inferior to the wholemeal. The second constituent of the vitamin-B_2 complex (so called "vitamin B_6") was abundant in the wholemeal flour and bread and less so in the white flour and bread. The nutritive value of wheat flour and bread therefore appears to be limited by their low content of flavin.

(To be concluded)

MEDICINE AND THE LAW

Novel Point in Examination under the Lunacy Act

A FRESH pitfall for the medical practitioner seems to have been discovered in the Lunacy Act. The simple inference to be drawn from Section 285 is that a justice may direct a medical practitioner to examine an alleged lunatic and may order the examiner to be paid reasonable remuneration. A recent case in the county court at Ross-on-Wye, however, has disappointed the doctor who drew this conclusion. The disappointment was mitigated, rather than explained, by a passage at the conclusion of the judgment of the court. The plaintiff doctor, who was represented by counsel instructed by the Medical Defence Union, was said by the judge to have acted as any doctor of repute would be expected to act, especially upon the serious information he had received; the examination was made at the request of the justice of the peace and the proceedings were properly carried through. This judicial tribute was the more gratifying because there had, at committees of the defendant county council, been violent criticisms of the doctor's conduct and he was naturally aggrieved when these criticisms received publicity in newspaper reports. But, notwithstanding the judge's favourable comments, judgment was given against the plaintiff on his claim to be paid one guinea as reasonable remuneration under the section already cited.

In lunacy litigation where medical practitioners are concerned there is usually a complaint that certification has been too lightly made. In the case at Ross-on-Wye, the practitioner, after making his examination, declined to certify. The question of examination arose because certain information had reached the doctor. Whether the information was true or not the county court judge was not in a position to say; he was satisfied nevertheless that the doctor, having had that information, was bound to act as he did. In view of this expression of the court's opinion, it would perhaps be unnecessary to summarise the evidence, were it not that some statement of the facts is needed in order to show the apparent gap in the present law. The plaintiff doctor was medical attendant to a father, mother, and daughter. The daughter, whom we will call Miss X, was some thirty years of age. The doctor from his own observation had formed the opinion that she was unbalanced, but his view was evidently influenced by what he learnt from her parents who consulted him in great anxiety. She was said to believe it necessary to disinfect everybody and everything. She was said to have poured disinfectants over her father and mother, to spend much of her time washing her clothes and her money in disinfectant, and to use a piece of paper or a cabbage leaf even for opening a door. One Sunday morning the doctor was summoned to the home of the family where he found the father suffering from a heart attack and lying on the floor as the result of an alleged assault by the daughter. The mother soon afterwards required medical attention for nervous breakdown attributed to the daughter's conduct. It was stated that on another occasion Miss X knocked her mother down and emptied a bowl of disinfectant over her. Miss X was also stated to have run about the garden without her clothes. The anxious parents asked the doctor's advice; they wanted to place their daughter in a nursing-home. He suggested, as there was no home in the neighbourhood, that the daughter

should enter a mental hospital as a voluntary patient. The mother replied that the daughter would refuse to do so and that the fees were beyond her means. After further discussion the doctor was asked to speak to the local relieving officer. He did so and the officer brought him next day a form of certificate which included the usual space for facts communicated to him by others. He filled in this space at the request of the relieving officer who said it would save time. He seems also to have signed the certificate by mistake but the county court judge declared that the mistake was not one of any magnitude and could have no material effect upon the case. The relieving officer arranged for the presence of a justice of the peace and the parties (the justice, the relieving officer, and the plaintiff doctor) went to the place where Miss X had her work. She was a schoolmistress and they went to her school—at her mother's suggestion since Miss X was apparently not sleeping at home. The justice said to the plaintiff "Will you go in and examine her?" This was the direction on which the plaintiff relied under Section 285 and the justice in his evidence agreed that it had been given. Although they had fixed a time when school would be over, there were two children still present. The doctor waited till they had gone and then discussed with Miss X the matters of complaint already mentioned. He ultimately came to the conclusion that he could not properly certify her; he went outside and said so to the magistrate. She asked who the people outside were and asked them to come in. The subsequent events, and in particular the complaints and criticisms of the doctor's conduct on the part of the defendant county council, were not placed before the court and were presumably irrelevant. The justice who saw Miss X stated in his evidence at the county court that there were no sufficient grounds for ordering her removal to a nursing-home. Having satisfied himself of the terms of Section 285, the justice made an order "for payment of reasonable remuneration" by the county council as the statute provides.

The county council denied all liability. It contended that Section 285 did not apply to the facts of this particular case. Its legal representative drew the court's attention to Sections 14, 16, and 17 of the Lunacy Act which relate to paupers deemed or alleged to be lunatic (or, in the euphemistic language substituted by virtue of Section 20 of the Mental Treatment Act of 1930, rate-aided patients deemed or alleged to be of unsound mind). The council argued that Miss X, who was paid as a school teacher, could not be called a pauper. Section 13 relates to a person "not a pauper and not wandering at large" who is deemed to be a lunatic and is not under proper care and control. Section 15 relates to a person, "whether a pauper or not," who is wandering at large. The council contended that none of these sections fitted the case of Miss X, and that, unless the action of the doctor could somehow be brought within the ambit of the Lunacy Act, Section 285 (on which the plaintiff relied) did not apply. The court took this view; the plaintiff had to show that he had been doing something within the Act; he had failed to prove his case.

The claim was stated in court to have been the first of its kind. If it be indeed a *casus omissus*, it would appear a proper matter for which Parliament should make provision when at length the law of lunacy is rewritten. The one consideration upon which everyone is agreed is that early examination and diagnosis is essential in mental treatment. This step can be taken only by bringing in the medical practitioner. In the facts under review it may be that the practitioner, the relieving officer, and the justice acted under a misunderstanding of a series of complicated enactments. The medical practitioner was not negligent, nor did he act in bad faith. There was obviously a proper case for investigation. If the justice could direct examination and could make the order for reasonable remuneration, and if the county court judge could say that the plaintiff acted as any doctor of repute would be expected to act, the county council might well have found itself able to honour the justice's order. Local authorities do not always behave prettily in litigation; there are ugly examples, for instances, of their repudiation of liability for work ordered and completed where the contract was not under seal. But allowance must be made for a proper desire to protect ratepayers' pockets and for a natural susceptibility to influences local and personal.

Maclean's Stomach Powder

Members of the medical profession would scarcely encourage trade monopoly in the treatment of ill health. They do not seek to protect their prescriptions by patent for personal gain. It would be unfortunate for a doctor if, after giving the public the benefit of his scientific research, he were involuntarily to appear a party to its commercial exploitation. The case of Prof. Hugh MacLean, which comes to mind in this connexion, has just been recalled in litigation before Mr. Justice Farwell between two firms of manufacturers, one of which was named "Macleans Ltd." A report of the hearing (in the *Pharmaceutical Journal* of May 29th and June 5th) shows that the proceedings arose out of an application by Macleans Ltd. for an injunction to prevent a rival firm from passing off certain medicated sweetmeats as the goods of the plaintiffs. The defendant firm (Lightbown Ltd.) was marketing sweets advertised as containing Prof. MacLean's powder; it was also using the expression "Maclean's sweets" in a manner likely to deceive the public into thinking that the defendant firm was selling preparations made by Macleans Ltd.

If the main issue in the litigation was the confusion in the sale of sweets, there was naturally an occasional allusion to the possible confusion due to the similarity of the name of Dr. Hugh MacLean and that of the plaintiff firm. The judge paid his tribute to the generosity of Dr. MacLean in giving the public the benefit of his work. Counsel and witnesses mentioned Dr. MacLean's research at St. Thomas's Hospital into the alkaline treatment of gastric ulcer and other ailments. His prescription was published, it was said, in 1929 both in the *Pharmaceutical Journal* and in the *Chemist and Druggist*. In 1931 Macleans Ltd., the plaintiff firm, "introduced to the public" a preparation named "Maclean's Brand Stomach Powder." The firm had been founded by a Mr. Alex. C. Maclean; hitherto it had been concerned with tooth powders and other toilet requisites. It now sold the powder in bottles on which the name "Alex. C. Maclean" was printed. Mr. Lazell, a director and secretary of the firm, told Mr. Justice Farwell of discussions with Dr. Hugh MacLean who had raised no objection to the firm's action. "We were anxious," said Mr. Lazell in the witness-box, "to do nothing which would harm the professor in the medical profession; we coined the word 'stomach' and in 1931 the powder was put upon the market; on the cartons were the words 'specially prepared according to the formulæ of Dr. Hugh MacLean.'" Soon afterwards, continued Mr. Lazell, the firm received a letter from Mrs. MacLean, taking

exception to this use of the name of her husband who was ill at the time. The words were consequently altered to "specially prepared according to the formulæ of an eminent physician," and later were altered again to "prepared in accordance with the formulæ used in the leading hospitals." Finally the words were altered to a mere statement that the formula was selected from a number of others. Macleans Ltd. had also registered the trade-mark "Macs," and it sold throat lozenges under this name. The defendant firm, Lightbown Ltd., has been selling medicated sweets under the name "Merrimacs" which Macleans Ltd. said was calculated to deceive and cause confusion. In addition, as already mentioned, the defendant firm had described its goods as "famous Maclean sweets," "Maclean sweets," and "containing the genuine Dr. MacLean's stomach powder." Lightbown Ltd. set up a defence which unsuccessfully challenged the plaintiff's right to use the trade-mark "Macs"; with regard to the words "Maclean" and "Macleans," it was contended that they were not a trade-mark; the defendant firm's sweets did contain stomach powder made up according to Dr. Hugh MacLean's formula. During the hearing Mr. Justice Farwell observed that he was more concerned with the sweets than with the powder; Dr. Hugh MacLean had never made any sweets. The judge came to the conclusion that Lightbown Ltd. had made a deliberate attempt to filch from the plaintiff firm the reputation which Macleans Ltd. had made for its sweets. He granted an injunction to restrict the defendant firm's use of the name "Merrimacs" or the description "famous Maclean sweets" or "Maclean's sweets." He did not, however, grant one thing for which Macleans Ltd. had asked. He refused to issue any injunction in respect of the description "containing the genuine Dr. MacLean's stomach powder." Macleans Ltd., he said, had no monopoly in the powder prescribed by Dr. Hugh MacLean. The right to use Dr. MacLean's prescriptions was not confined to any one person. Prior to 1931 "MacLean's powder," "MacLean's alkaline powder," or "MacLean's stomach powder" were terms "quite well known among doctors, to a large extent known among chemists, and to a lesser extent known among the public." Macleans Ltd. had made up this powder, put it on the market, and sold it under the signature of "Alex. C. Maclean"; that fact did not prevent Prof. MacLean's powder being sold as MacLean's powder; Macleans Ltd. claimed no monopoly in the powder and could have none.

UNITED STATES OF AMERICA

(FROM OCCASIONAL CORRESPONDENTS)

BIRTHS, DISEASES, AND DEATHS

THE provisional mortality figures published in *Public Health Reports* for May 7th are based on data for twenty-five States and the District of Columbia for 1936. Mortality from all causes, which had been unusually low throughout the depression, increased in 1936 about 5 per cent. over 1935, and the rate was the highest recorded since 1929. Only three States (Montana, South Dakota, and Iowa) reported lower mortality than in 1935. Six diseases, however, registered new minimum death-rates during 1936: these were typhoid fever, measles, whooping-cough, diphtheria, poliomyelitis, and diseases of the puerperal state. Scarlet fever was the only major disease of childhood which failed to register a new minimum death-rate. Perhaps the most disquieting feature of the mortality conditions in 1936 was that the decline in tuberculosis mortality almost ceased: in fact twelve of the twenty-six reporting districts noted increases. The so-called degenerative diseases —cancer, diabetes, cerebral hæmorrhage, and heart conditions—continued their upward trend. The combined mortality from influenza and pneumonia was the highest since 1929 and represented an increase of nearly 10 per cent. over 1935. The birth-rate continued to decline during 1936: it was 16·2 per thousand population, being 1·2 per cent. below that for 1935 and 5·6 per cent. below that for 1932. Ten States reported higher rates than in 1935, thirteen States lower rates, while three reported no change. Although the infant mortality-rate increased about 2 per cent. over the previous low record in 1935, it was still less than any other rate recorded. The report closes with the statement that "The time will soon come in this country, if present trends continue, when 95 per cent. of the new-born infants will survive the first twelve months after birth."

AMERICAN PSYCHIATRIC ASSOCIATION

Some 2000 neurologists and psychiatrists attended the 93rd annual meeting of this association held in May in Philadelphia. Among the 100 papers presented for discussion those describing the American experience of insulin shock in the treatment of dementia præcox were of major interest. The electrical activity of the brain cortex during epileptic seizures was described by Dr. W. G. Lennox of the Harvard medical school, and the audience was fascinated by his suggestion that the solution of the problem of epilepsy must be sought in the chemistry of the gene. An increase is noted in puerperal insanity.

Data of great sociological import were disclosed in a case study by Dr. Leo Kanner of Johns Hopkins University of 102 women released from the Baltimore training school for the feeble-minded. These girls were released on writs of habeas corpus granted by careless courts on the application of unscrupulous lawyers. The lawyers could not have obtained their fees without the interested collaboration of women in search of cheap domestic labour. None of the girls so released were paid normal servants' wages; some received no wages whatsoever. Of 102 girls released 17 acquired and transmitted serious communicable disease, 11 died before the age of thirty-two, 8 of them within five years of release. No less than 48 of the girls married. "Making every possible allowance," Dr. Kanner was able to describe 10 of the husbands as "relatively stable and responsible individuals;" 7 had prison records, 14 were habitual drunkards, 17 ultimately abandoned wife and family. To these hapless unions 165 children were born of whom 108 were "obviously and incontestably feeble-minded." Of the 102 girls 29 became prostitutes.

RABIES

The daily press and the magazines have lately carried many scare stories about rabies. The situation has been well known to public health officials, and has been potentially dangerous for a considerable time in many different sections of the country. For several years rabies has been almost endemic among dogs and in districts where control has been relaxed human rabies has already appeared occasionally. In many districts stray dogs are allowed to become practically wild, and some of them have become rabid and bitten children without warning; and in many districts there is divided responsibility with regard to the handling of dogs and the reporting

of bites. The attention of the public is being called to these facts and already there has been some improvement in coöperation between various agencies. As has been pointed out in the medical journals, the fact that the disease is primarily one of dogs has done much to enlist the support of humane societies.

THE ATLANTIC CITY MEETINGS

The annual meeting of the American Medical Association is to take place from June 7th to 11th, in Atlantic City, New Jersey. This occasion is usually accepted as an opportunity for the meeting of a number of other societies at or near the same time and in the same place. These include the American Bronchoscopic Society, the American Laryngological, Rhinological, and Otological Society, the American Neurological Association, the Association for the Study of Allergy, and the American Association for the Study and Control of Rheumatic Diseases. By this arrangement, it is possible for a great many specialists to concentrate their major medical meetings into a relatively short period and to save a great deal of time and money in travelling—which, considering the distances involved, is of great importance.

THE 1937 CHRISTMAS SEAL

The National Tuberculosis Association has already published its design for the 1937 Christmas seals. This is no accident but part of a well-planned publicity campaign which will make the American public more than ever seal-conscious when the period between Thanksgiving Day and Christmas releases these most valuable revenue raisers for sale. The picture shows a bell-ringer, lantern clasped in his left hand, his bell swung vociferously above his right shoulder. The association is encouraging schools to study bell music and has arranged for the publication of a "unit" on bell music (a unit is a sort of brick in the structure of a school curriculum). They quote from Mrs. Coleman of Columbia University, who will prepare this unit, as follows:—

"The sound of stone, of hollow, resonant wood, and of all the metals that come out of the earth, have made a strange appeal to the mind and emotions of man. He has fashioned these materials into various forms; bells, of some kind, have been known all over the world—civilized and uncivilized—and practically all primitive peoples have used them. Rude tribes living in the remotest islands in the midst of the sea have been found to possess bells; and no matter how civilized and cultured people become, they are still moved in some way by their sound."

When the art and science of salesmanship has progressed a little farther into the field of preventive medicine what wonders we may yet behold!

BUDAPEST

(FROM OUR OWN CORRESPONDENT)

THE CAMPAIGN AGAINST SYPHILIS

AT a recent meeting of the Royal Medical Society Dr. Joseph Kiss, secretary to the Ministry of Health, detailed the development of the Hungarian campaign against syphilis. The decreased number of new patients at clinics and the diminished intensity of the disease among them, of which there is statistical evidence, provides but little information of the position in the country generally, and the aim of the antisyphilitic campaign is to reach patients infected with syphilis wherever they live. The spread of infection from patients with definite symptoms of infection or those who present symptoms of other disorders in whom the disease is discovered by means of laboratory tests can be prevented, but the problem remains of discovering and treating effectively those who harbour the infection and pass it on without knowing it. The most direct way of tracking hidden infections would be the systematic performance of serological tests, but the present financial and economical conditions in Hungary do not allow the introduction of this costly solution, which moreover has disadvantages. A practical method for the discovery of a considerable proportion of infected persons suggested by Dr. Kiss was the serological examination of all pregnant women. On the assumption that 80 per cent. of all macerated fœtuses are syphilitic, an attempt since 1932 has been made to estimate the number of macerated fœtuses amongst stillborn babies. The records from the obstetrical clinics and hospitals show that in 1933, 1934, and 1935 nearly 40 per cent. of the stillborns were macerated, making 1·2 per cent. of the total births. After the birth of a macerated fœtus at the Budapest obstetrical clinics the parents are advised to have a serological test made; among deliveries taking place at the patients' homes no such advice has hitherto been given. During the period 1933–35 out of 6146 macerated fœtuses 4573, that is 74·4 per cent., were born at home. It is probable that in the future these parents will be made to subject themselves to serological test and when reports are positive to undergo regular treatment. The National Sickness Insurance Institute already enacted that every single pregnant woman calling on the panel doctor must submit to such a test.

EFFECT OF PROSPERITY ON FERTILITY

In several European countries where the problem of legalised abortion has been discussed the opponents of strict prohibition always base their arguments on the importance of social position, stating that in most cases it is poverty and the inability to bring up her child in comfort that drives the wife to the abortion-monger. That this is a false assumption is proved by the everyday experience that it is not the poor that seek relief for getting rid of their burden but the well-to-do, who are impelled by motives of personal comfort and vanity. In Hungary it is proverbial that in the Dunantul, beyond the Danube, it is the custom to have only one child, though this part of the country enjoys the greatest possible prosperity. The statistical returns relating to the fertility of married women, as shown by the census of 1930, point to the fact that the number of children of farmers and tenants holding over 100 acres of land averages 3·38 per family; while in those with less than 100 acres the number is 3·75, and in agricultural servants and farm hands 4·20. These figures show the checking effect of property on the birth-rate.

A COMMITTEE FOR THE PREVENTION OF BLINDNESS

After the formation of the International Committee for the prevention of blindness branches have been established in every country. The Hungarian committee was formed as a separate section of the National Public Health Association, and its opening ceremonies were held recently. The president is the Countess Juliette Károlyi and the vice-president Prof. Emile Grosz. The latter, speaking at the inaugural meeting, detailed the history of international organisations against blindness. He said that in Hungary there are about 6000 persons incurably blind, and of these the vision of about 2500 could

have been saved if precautionary measures had been applied in time. The most important tasks are to diminish the devastation of infectious eye diseases and to check the occurrence of industrial accidents in connexion with the eyes. The committee has set itself as one of its tasks the education of those with impaired vision.

STILLER'S CENTENARY

Hungarian physicians have just celebrated the centenary of the birth of the late Prof. Berthold Stiller, physician and director of the Jewish hospital in Budapest. His treatises on the asthenic constitution—his morbus asthenicus—began to appear in the 'nineties, and these were collected into one volume in 1907. He enumerated certain diseases, particularly pulmonary tuberculosis, to which the asthenic type is specially predisposed, and he pointed out that there are other diseases that do not occur at all in this type of subject. In his description he paid most attention to certain anatomical peculiarities, especially to a mobile tenth rib, as well as to a laxity of the connective tissue, giving rise to the visceral ptoses. He was also the founder of the science that investigates the connexions between bodily constitution and character, and which is generally attributed to Kretschmer. Accordingly Calvin, Schiller, Rousseau, Frederick the Great, and Robespierre were asthenics and their individualities were determined by their stature. A leading article in THE LANCET reviewed the book at the time and paid tribute to Stiller's "admirable critical faculties." Though the seed sown by Stiller proved very fertile, it did not meet with such a general recognition in Germany as elsewhere, but some years later they too acknowledged his merits and the importance of his work. But Stiller was not only an observant natural philosopher; he was also wholly a physician. Toward the end of his life he entered into a fierce dispute with the prominent Danish surgeon Rovsing, who advocated treating gastroptosis and nephroptosis by operation, while Stiller himself believed in improving the general condition and tuning up the whole body.

PARIS

(FROM OUR OWN CORRESPONDENT)

TUBERCULOSIS CAMPAIGN IN AN INDUSTRY

THE Michelin works at Clermont-Ferrand, not far from Paris, present a useful object-lesson in community welfare with special reference to tuberculosis. At the beginning of this century, this industry, with some 22,000 souls dependent on it in the town, began to set its house in order, pulling down slums and replacing them by model houses at a moderate rental. Between 1909 and 1930, 3087 such model dwellings were built, and by 1932 the slum area had ceased to exist. In 1915 Michelin made those family allowances which in 1932 became compulsory by law for the whole of France. In 1921 a dispensary was organised for the benefit of the tuberculous and the pre-tuberculous, and while in 1922 as high a proportion as 13 per cent. of the attendants at this dispensary represented advanced cases, in 1935 the proportion was only 1·5 per cent. The Grancher system of boarding-out children exposed to infection in their homes has also been adopted by this community; and of the 229 children found to be exposed to infection between 1922 and 1927, 147 were promptly isolated, 23 were isolated after some delay, and 59 were left in contact with infectious cases, and the tuberculosis mortality in these three groups was 0·6, 13, and 25·4 per cent. respectively. Finding that applications for sanatorium treatment meant intolerable delays, the directors of Michelin opened a sanatorium of their own in 1926 with 90 beds. Here there is no limit to the duration of treatment, and 70 per cent. of the patients admitted to this institution have been discharged under the heading "amélioration présumée durable." Children exposed to infection are given B C G and are examined at the dispensary three or four times a year. Thanks to these and many other benefits, the incidence of tuberculosis among the 22,000 members of the Michelin community has been greatly reduced. In 1931 there were 181 new cases of tuberculosis discovered in the community. The corresponding number in 1936 was only 84—a fall from 8·2 to 3·8 per 1000 inhabitants.

AMATEUR THORACIC SURGERY UNDER A CLOUD

In a circular letter dated April 7th, addressed to French prefects by the Minister of Public Health, attention is drawn to the fact that during the last few years surgical methods of treatment of pulmonary tuberculosis have not ceased to improve and now have become common practice in sanatoriums. But such operations should be in the hands only of skilled surgeons with adequate clinical and operative experience. The Minister of Public Health, on the advice of the Tuberculosis Commission, has therefore ruled that the names of all the doctors undertaking the division of pleural adhesions, phrenicectomies, thoracoplasties, &c., in public sanatoriums must be submitted to him for his approbation with a complete dossier concerning their ages, addresses, and qualifications with special reference to their fitness for such work.

GUIDANCE FOR FOREIGN MEDICAL STUDENTS AND DOCTORS IN FRANCE

Although I have already referred from time to time to the Association pour le Développement des Relations Médicales entre la France et les Pays Etrangers, it may not be amiss to refer to it again now that during this summer and autumn Paris will be more than ever a centre of medical studies, not least post-graduate studies. The offices of this association are in the Salle Béclard, Faculté de Médecine, 12, rue de l'Ecole-de-Médecine, and they are open every day from 9.30 to 11 and from 2 to 5 except on Saturdays. At these hours Mademoiselle Huré, who is Prof. Hartmann's right hand, gives advice to students and doctors as to where they should go and what they should see. Her telephone numbers are: Danton 09.59 or Danton 55.36.

In the quarterly bulletin of the association dated April, 1937, Prof. Hartmann, who is the president, gives some instructive figures with regard to the attendance of foreign medical students and doctors at the Paris medical school since 1929. He deplores the change which has come over the scene in the interval owing to the world crisis, currency difficulties, xenophobia, and the competition of brand-new buildings and schools of medicine in the South American countries. While in 1929 there were 293 foreign medical students registering in the Paris faculty of medicine, the corresponding figure in 1936 was only 31. It might have been thought that Mademoiselle Huré's work would have diminished in proportion to the decline in the number of foreign medical students, but of late French medical students have found their way in increasing numbers to her office, and her services have been much in demand

in connexion with post-graduate classes in Paris. On this subject Prof. Hartmann is hopeful. As he points out, there has of late been an encouraging rise in the number of such courses—a rise which assuredly reflects the growing appreciation they enjoy. In 1933, the low-water mark for several years, there were only 1013 persons attending these post-graduate classes, whereas in 1936 the corresponding number was 1200. "It is certain," Prof. Hartmann writes, "that if these courses were announced early enough, if they were well co-ordinated and well organised, we would see a considerable rise in the number of their attendants." Might it not be possible for arrangements to be made between the French University authorities and the Anglo-Saxon press to give effect to this suggestion?

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE FACIAL EXPRESSION OF THE SICK CHILD

AT a meeting of the Medico-Chirurgical Society of Edinburgh last week Dr. William Brown, senior physician to the Royal Hospital for Sick Children, Aberdeen, spoke of the face and facial expression in the sick child, and showed illustrative lantern slides. He pointed out that the maldevelopment of the lower jaw is often due to faulty methods of feeding, and that the adenoid facies may be caused by various disturbances of the upper respiratory tract. An excess of hair is common in cases of mental deficiency but is often seen in children suffering from diseases of the lung: long eyelashes are often observed in tuberculosis. The colour of the child's face should be studied during sleep owing to the frequent vasomotor changes which occur when the child is awake. Cyanosis in infants generally means heart disease. A unilateral malar flush may indicate the side of the lesion in lobar pneumonia. Herpes is seen in pneumonia and other respiratory infections, but also in meningitis. Thick and everted lips occur in severe mouth infections and also in cases of severe cough, when it is accompanied by cyanosis and swelling of the eyelids. Thirst is indicated by an open mouth and a dry tongue, and when these signs are present fluids should be introduced by every available route. An open mouth, or its opening and shutting also suggests hunger, and the sight of a bottle produces the sucking reflex in such cases. Wasting may be due to loss of fat or loss of fluid: the last fat to disappear from a baby's body is the sucking pad in each cheek. Dehydration has a distinct facies which calls for the urgent administration of fluids: the orbits are hollow, the fontanelle is depressed, the eyes sunken and staring, and the skin of the lower jaw loose and redundant. In cases of pyloric stenosis the forehead is lined with parallel horizontal furrows, an appearance according to Dr. Brown almost diagnostic of this condition. The sudden development of œdema suggests frontal sinusitis or cavernous sinus thrombosis. Œdema of the eyelids is often observed in children who have been starved; persistent œdema involving only one eye may occur in middle-ear disease. It is important to observe the eyes of infants; a sign of pain is wide dilatation followed by contraction. In a congenital heart disease the eyes are often dark brown and very bright. The sudden onset of squint or ptosis suggests meningitis, but temporary ptosis may occur in middle-ear disease. The appearance of open fixed eyes when the child takes no interest in his surroundings is a bad sign. When the child is conscious, has wide open eyes, and finds difficulty in breathing pyelitis is often present. The facial expressions of children are simple and in infants there are only three—complete repose, pleasure, or annoyance. Dr. Brown referred to the mask-like face of chorea and pointed out that the reappearance of expression is a sign that the acute stage is passing off. The child suffering from Pink disease is really miserable. He cannot sleep, eating is painful, and the extremities are tender. Infants and very young children never smile when seriously ill, so that the first smile is a welcome sign of improvement.

OCCUPATIONAL THERAPY

The annual report of the medical superintendent of the Astley Ainslie Institution, Edinburgh, shows that the number of patients who entered the institution was 1077 during the past year, and that the average stay for each patient was 9·6 weeks. Fifty-one of the patients had been in the institution for over six months. The maintenance cost per bed for a year is now £151. An interesting development has been the building of an occupation therapy department which was opened in May of last year. The building has one storey and consists of a central section with two large wings projecting from either end to conform with the "butterfly" pattern of the existing pavilions. The wings contain the main workshops; one for the quiet crafts such as weaving, painting, basket-making, and the other subdivided into two arms, the larger for the noisy crafts such as carpentry, the smaller for pottery work. Large windows form the greater part of the wall space of the main workshops so that when the weather is suitable the patients work under open-air conditions. The daily average number of patients "treated" in the workshop has been 97.

IRELAND

(FROM OUR OWN CORRESPONDENT)

FEES FOR INOCULATION AGAINST DIPHTHERIA

THE annual meeting of the Irish Free State Medical Union was held in Dublin on June 3rd, when Dr. Conor Maguire was re-elected president for a second year. The report of the council stated that there were 871 members on the register of the Union at the end of 1936. The number has increased considerably since that date. It was announced that arrangements were being made for the publication of a monthly journal, and that the first number would be issued on July 1st.

A long discussion took place on the question of the remuneration for the work of immunisation against diphtheria. The demand of the Union hitherto has been for a fee of two guineas for a session, each session to cover not more than twelve completed cases. The Minister for Local Government and Public Health had refused to sanction fees greater than 1*s.* 6*d.* per case where the one-injection method was followed, and 2*s.* 6*d.* per case where the three-injection method was followed. For several months past country practitioners have been engaged in the work, receiving no fees, but leaving the settlement as regards fees in suspense. Dr. J. P. Shanley, honorary secretary of the Union, related the steps that had been taken to secure a satisfactory settlement. Recently the parliamentary secretary had suggested

a sessional basis for remuneration, a fee of one guinea to be paid for each session of twelve patients. As this was worse than what the department had previously been willing to sanction, the offer had been refused. The medical secretary, as the result of inquiries made in Belfast and London, had found that in Northern Ireland the two-injection method was most in use, and a fee of 2*s*. 6*d*. was given for each injection. In England the fee varied from 5*s*. to 10*s*. per injection, the medical practitioner supplying the material in the areas where the higher fees were paid. After protracted discussion a resolution to the effect that the fees should not be less than 2*s*. 6*d*. per injection was passed, and if this offer were not accepted within four weeks it would be withdrawn.

ANNUAL DINNER OF THE UNION

The first annual dinner of the Irish Free State Medical Union was held on the evening of the annual meeting in the Dolphin Hotel, with the president in the chair. Over a hundred members and guests were present, including Mr. Sean T. O'Kelly (Minister for Local Government and Public Health, vice-president of the Executive Council), Mr. Alfred Byrne (lord mayor of Dublin), Dr. Denis Coffey (president of University College), and Mr. P. Doran (chairman of the Hospitals Commission).

THE DUBLIN HOSPITAL PROBLEM

The daily press of Dublin has given wide publicity recently to a plea made in the annual report of the board of governors of Sir Patrick Dun's Hospital that the Minister for Local Government and Public Health should come to a decision about the future of the Dublin hospitals. Attention is drawn by the governors to the recommendation made to the Minister by the Hospitals Commission some eighteen months ago in favour of the development of four large voluntary hospitals in Dublin, each to contain accommodation for some five to six hundred beds. The governors believe that the Commission underestimated the needs of Dublin. They point out that the demands for hospital accommodation are steadily increasing. In order, as far as possible, to meet these growing demands, the governors have, as a temporary expedient, found it necessary to use stretchers and temporary beds, yet many patient have had to be turned away for sheer lack of space. This condition clearly cannot be allowed to continue. Even if the Minister decides on the erection of five large hospitals, much time must elapse before the buildings can be occupied. During that time temporary accommodation must be provided. Sir Patrick Dun's is one of four small hospitals which accepted cordially the suggestion of the Hospitals Commission that they should amalgamate to form one hospital of 500 or 600 beds. They believed that the era of small hospitals had passed, and that larger hospitals must be built if efficient service was to be rendered. Their proposals have been before the Minister for some eighteen months, backed by the support of the Hospitals Commission, but they have been unable to obtain a decision. They must make some provision to meet the demands on their service and accommodation. They are waiting to be told whether the provision is to be temporary or permanent.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

BY TWELFTH MAN

II

IT has been said repeatedly in recent years that surgery is the greatest of the arts. When I first read this I believed the writer to be jesting, but as the assertion was frequently repeated I concluded that it was intended to be a statement of fact. The psychologist would regard this as a "wish-fulfilment" definition. For if surgery is the greatest of the arts and X the greatest living surgeon, then it follows that X is a finer artist than Brangwyn or Sickert, Epstein or Gill, Tom Webster or David Low. In fact, as Arnold Bennett used to say, a terrific swell.

An artist creates beauty but a surgeon creates nothing. Moreover, the surgeon works in perishable material and the artist who uses his hands is careful to select a medium that has durability.

> "But beauty vanishes; beauty passes;
> However rare, rare it be;
> And when I crumble—who will remember
> This lady of the West Country?"

Or indeed the surgeon who defiled her beauty with his so-lovely gastro-jejunostomy? Surgery must be placed amongst the crafts; but here again it takes a lowly place unless the crafts are being adjudged solely for their dramatic quality or utilitarian value, when it goes top. Surgery may confer imperishable value on the human race by prolonging the life of a true artist or a real craftsman. But it may render dictators the same service. Who can hope to cast the balance-sheet of such indiscriminate life-saving?

* * *

This desire to make the best of a world other than one's own has something to do with the complaint that clinicians are so infrequently awarded the Fellowship of the Royal Society. Lewis, Trotter, Parsons, Gordon Holmes, and a few others and the list is complete. I think there is little reason to complain. The first-class clinician, be he physician or surgeon, rarely adds much to the sum of human knowledge; his chief claim to distinction is his highly developed clinical skill which dies with him. Moreover, he gets a larger share of material success than falls to the lot of the pure scientist—honours, wealth, and fame. Not that an F.R.S. is always a badge of poverty and social insignificance.

* * *

Hospital staffs were just emerging, when I was a student, from the sometimes mild but often bitter antagonism which existed between physician and surgeon. Physician and surgeon are now united, as brothers engaged in empirical living, before the cold disdain of the scientist and research worker. No doubt we shall soon have passed through this phase also, but the clinician is sometimes stimulated to counter-reaction. A London Surgeon wrote in Grains and Scruples that "most men who undertake research

of set purpose do so less from a passion for discovery than from a knowledge of their own inadequacy for the battle of life, from a desire for 'some sad mechanic exercise, like dull narcotics, numbing pain.'" A Doctor without Patients replied that "our faculty suffers too much from mutual scorn. Sir A. B. in Harley-street sneers at the high-browed Prof. C.: A 'cleverish man, my dear fellow, but no breadth at all, no vision,' and secretly fears and envies C's exact knowledge. Prof. C entertains his friends with anecdotes of 'that priceless fool B's' ignorance and is secretly annoyed that B can afford a better car and more exciting holidays than he. . . . They really know very little one of another."

The opinion of A London Surgeon is elaborated by Aldous Huxley in his recent novel "Eyeless in Gaza"—"Scholars, philosophers, men of science—what other class of men has succeeded in getting the world to accept it and more astonishing, go on accepting it at its own valuation. . . . But, in fact the Higher Life is merely the better death substitute. A more complete escape from the responsibilities of living than alcohol or morphia or addiction to sex property. . . . The Higher Lifer can fairly wallow in his good conscience. For how easy to find in the life of scholarship and research all the equivalents for the usual virtues—*Chastity* of artistic and mathematical form. *Purity* of scientific research. *Courageousness* of thought. *Bold* hypotheses. Logical *integrity*. *Temperance* of views. Intellectual *Humility* before the facts. All the cardinal virtues in fancy dress. The Higher Lifers come to think of themselves as saints—saints of art and science and scholarship." This I take to be Aldous Huxley's way of saying that he is every bit as good a man as was his grandfather, the great T. H. But, seriously, which of us avoids this "sad mechanic exercise"? Isn't life for all of us, as A Doctor without Patients said, "one damned thing after another, in the eighteenth or the twentieth centuries, country practitioners or university professors"? Is there no "battle of life" in the laboratory ("I have thee by the throat, thou million-murdering death")? Are we not all, in some sense, escapists from responsible living? Who shall cast the first stone?

* * *

The desire of some clinicians to see their art transformed to an exact science is understandable but it is less excusable in our day when science itself is regarded as a form of art "an *imaginative* picture constructed by the human mind of the workings of the universe"—and when, as C. E. M. Joad has said, the kind of information which "science has to offer in respect of many things is not generally regarded as the kind of information which matters."[1] I once heard Sir Almroth Wright address an audience of medical students and, in inimitable fashion, abjure them to flee like the devil from the *saltus empiricus* and cling, as they would to their hope of salvation, to the *passus scientificus tutus*.

Listen to two doughty and distinguished opponents of this conception of clinical medicine as a science. A Rusticating Pathologist wrote: "I was rather shocked to read in THE LANCET the other day that the conservator of the Hunterian Museum thought that the 'student should be well trained to the experimental method because he would find when he came to clinical work that diagnosis was conducted in the same way.' . . . This is either bad experiment or bad medicine. . . . It has always seemed to me that the great trouble of the doctor is that he has to do sums with numbers which are often very uncertain and his great pride that he usually gets the answer somewhere near right. If he failed to come to a conclusion adequate for action he would be a bad doctor, if he drew a conclusion from such froward data he would be a worthless experimenter. . . . And, again as a patient, I judge that his first business is to be a doctor. . . . To cure a patient without knowing what is wrong with him is no mean performance." And Sir Auckland Geddes, most unexpected of allies: "The real business of clinical medicine was not science; it was a personal relationship into which much sincerity and medical knowledge were suffused by the physician, and trust and some dependence on the patient. . . . Too many come to the sick-room thinking of themselves as men of science fighting disease and not as healers with a little knowledge helping nature to get a sick man well. Beyond their scientific knowledge of man lay an incompletely explained area in which important things happened without discernible physical cause. . . . Once they had ceased to fear what seemed to them non-rational and recognised that human reason could not grasp all reality they could get to know a good deal about man." This view of the function of clinical medicine does not, on the one hand, require the abrogation of human reason nor, on the other, neglect the new knowledge which streams from laboratories.

* * *

Before I leave this matter of clinical medicine, let me refer to this new, "this happy breed of men," the Clinical Scientists. It will be interesting to see just how much clinical medicine benefits from the attempt to apply laboratory methods in the investigation of disease in the human subject. It is one thing for men of genius like Thomas Lewis and James Mackenzie after many years of varied activity deliberately to limit themselves to work in a restricted field. They will certainly produce results of value. But the neophytes who follow them, patiently imitative, having known no other good than this and desiring none, will they too bring in the sheaves with them? How can the self-sterilised be fecund? I met a precious young man just down from Oxford who, when I asked him what he was going to do, told me he was going to be a dramatist. He ignored the fact that dramatists begin life as actors, journalists, authors, shop assistants, stockbrokers, barristers, dramatic critics, schoolmasters, and doctors, for the sufficient reason that life is the dramatist's workshop. So it is with clinical research. A man will only pursue his own ideas with passion and profit. Fruitful ideas for clinical research will arise in the course of clinical practice, so that the clinical scientist must evolve from the practising clinician. It is, therefore, no coincidence that James Mackenzie and Thomas Lewis each began a scientific research into clinical problems late in life. To encourage young men to become clinical scientists by giving them whole-time salaries which do away with the need for clinical practice is as absurd as it would be to attempt to create a new School of British Drama by putting all the potential dramatists in a closed community, compelling them to do nothing but read Shakespeare, Sophocles, and Shaw.

* * *

This week I have stolen too much of other men's thunder. With shame I recall that A Public Health Clinician wrote, "To-day, with the passage of the years, I rarely use quotations but I endeavour to express myself clearly and give no one else credit for my ideas." How he must deprecate my derivative performance.

[1] Guide to Modern Thought. London: Faber and Faber.

PANEL AND CONTRACT PRACTICE

Court Finding on Capitation Fee

THE Ministry of Health issued on June 7th the finding of the court of inquiry set up by the Minister of Health and the Secretary of State for Scotland under the chairmanship of Lord Amulree, to consider the question of the capitation fee payable to medical practitioners under the scheme of National Health Insurance. The court was asked to investigate the question whether any, and if so what, alteration ought to be made in the amount of the doctors' capitation fee, having regard to any changes since 1924 in the cost of living, the working expenses of practice, the number and nature of the services rendered to insurance patients, and other relevant factors, and on the assumption that as from Jan. 1st, 1938, employed persons under the age of 16 will have become entitled to medical benefit by virtue of amending legislation. The finding of the court is that the appropriate capitation fee should be 9s., the figure at present obtaining in regard to insured persons over the age of 16.

The introduction of legislation to entitle boys and girls to medical benefit immediately on becoming employed after reaching the school leaving age has awaited this decision, and the Ministry hopes it will now be possible to introduce the necessary bill in Parliament.

Delayed Acceptance Forms

The London medical benefit subcommittee asked the service subcommittee to investigate a case in which a practitioner had been remiss. In July, 1936, his attention had been drawn to the fact that during 1935 he had submitted only five acceptances and then on March 31st, 1936, he had submitted no less than 165. A temporary improvement followed but from Sept. 30th, 1936, to April 1st, 1937, no acceptances were submitted. On the latter date 101 medical cards were submitted, some of which had evidently been in the possession of the practitioner since October, November, and December, 1936. The doctor told the subcommittee that he understood other practitioners were in the habit of submitting acceptances once a quarter and he had not appreciated that by retaining the medical cards he had in fact committed a breach of the terms of service. The subcommittee pointed out to him that the seven days' limit, laid down in Clause 3 of the Allocation Scheme, was not a troublesome piece of red tape but was an essential part of the machinery for the provision of medical benefit. Apart altogether from the interference with efficient administration the insured persons had been deprived of their medical cards, which was likely to cause inconvenience if they should require treatment away from home. The report of the subcommittee points out that this is the first time they have been called upon to deal with a breach of the terms of service of this nature but they understand that the practitioner concerned is by no means the only offender. Beyond deciding that there had been a breach of the terms of service the committee took no action but they indicated that should there be a repetition of the offence they would feel compelled to take a more serious view of the matter. The practitioner has in effect fined himself because in many cases he neglected to submit acceptances during the quarter in which they were made.

Interference with Choice of Doctor

Two doctors were in partnership and, as sometimes happens, were not on speaking terms. The partnership was to be dissolved, and the junior who was going out found that insured persons whom he had accepted were receiving medical cards bearing the name of the senior partner. The insurance committee had an examination of the acceptances made when it was clear that in a number of cases the junior's signature had been erased or obliterated and that of the senior substituted. Certain insured persons were interviewed by the medical service subcommittee and made it clear that they wanted the junior partner, and in some cases did not even know his colleague. The senior partner admitted the deliberate alteration of the medical cards because he thought that as the junior was leaving the practice shortly it was absurd for him to continue to accept patients. He accordingly instructed the secretary to the partnership to intercept acceptances by the junior and to submit them to him for signature. He had no ulterior motive and at the time quite failed to appreciate that he was treating the wishes of the patients as of no effect. He offered to consent to the transfer of any of the patients to other doctors but the subcommittee decided against this; instead they caused the acceptances to be cancelled and open medical cards to be sent to the insured persons. The secretary admitted having held up the acceptances (although she had been told to send them in weekly) and having erased the junior's signature, saying that she regarded herself as employed by the senior and that she did not feel it her duty to tell the junior what she had done. The subcommittee had no doubt that the strained relations between the partners explained in some degree the action taken by the senior. There was no attempt at forgery—the alterations were obvious—nor was there any financial advantage to the senior because the profits had to be divided in accordance with the partnership deed. On the other hand they regarded as serious the interference with the right of insured persons to choose their doctors. There being no provision in the terms of service which the senior partner could be held to have infringed the committee simply put on record that the actions of the senior partner were deserving of censure.

Approved Societies and Hospital Treatment

The Central Bureau of Hospital Information has just published a useful addition to the numerous memoranda prepared for the assistance of hospital administrators. Memo. No. 108, replacing Memo. No. 49, contains (1) a list of the approved societies which have included hospital benefit in their fourth valuation schemes of additional benefits, and (2) a list of approved societies which, although not providing hospital benefit, yet allocate an annual sum for the purpose of making donations to charitable institutions, including hospitals. There are 273 societies in the former list and 85 in the latter; and among the 273 societies providing hospital benefit are 70, which, in addition, make donations to hospitals and other charitable institutions. It is not so widely known as it should be that approved societies are not only empowered to set aside an annual sum from which to make donations to charitable institutions, but may also, with the consent of the Minister of Health, include hospital benefit in their scheme of additional benefits adopted

after the completion of the fourth valuation. Payments made to hospitals by a society providing the benefit are based on the number of the society's members treated as in-patients and the duration of the period of treatment in each case; and it is necessary for a hospital in applying to the societies for payment in respect of their members treated to furnish to the society a quarterly statement containing certain particulars of each patient, which are set out in the memorandum. Payments are made only in respect of those members who were in the society during the period in which the surplus accrued out of which hospital benefit is payable. Copies of the memorandum, which seems indispensable to all hospital administrators, can be obtained from the Director of the Bureau, 12, Grosvenor-crescent, London, S.W.1. The price for single copies is 4*d.* post free, and for 12 copies, 3*s.* 6*d.*

THE LANCET 100 YEARS AGO

June 10th, 1837, *p.* 410.

From A CALEDONIAN SURGICAL REPORT.

"EXTRAORDINARY SURGICAL OPERATION.—In passing along the South Bridge yesterday forenoon, our attention was arrested by a great crowd of gentlemen, at the gate of the *Royal Infirmary*, pressing inward. Joining in the crowd, we were carried along with it to the surgical hospital, where we found the operating theatre crammed to excess, chiefly by medical gentlemen and students; amongst these we recognised Sir George Ballingall, Dr. Maclagen, Mr. Newbigging, Dr. Campbell, the surgeons of the 14th Light Dragoons and 42nd Regiment, besides many country surgeons. The excitement we have described was occasioned by the knowledge that an operation never performed in Great Britain was to be done upon a young man by Professor Lizars. The case was what is technically called aneurism of the subclavian artery, so near the heart that the first large trunk required to be tied, namely, the *arteria innominata*. The young man, a carter from Dalkeith, was placed upon the table, and the Professor commenced by making an incision in the neck, and progressively cut down to the artery, when the ligature was applied. The operation was completely successful. The patient, who bore it with uncommon fortitude, was only on the table for fifteen minutes altogether. This, as we have already said, is the first operation of the kind which has been attempted in Great Britain. We understand that it was once successfully performed at Berlin by Dr. Graefe, and once in New York by Dr. Mott."—*Caledonian Mercury*, June 1.

*** The details of this case were set out with a full description of the technique of this operation, at which the patient was not 15 minutes on the table, in the issues of THE LANCET in the same volume dated June 17th, p. 445, and July 15th, p. 602. The patient survived for 21 days after the operation —ED. L.

From lectures on Materia Medica and Therapeutics delivered by GEORGE G. SIGMOND, M.D., *at the Windmill-street School of Medicine, p.* 396.

. . . It is in the paroxysm of spasmodic asthma that stramonium has been most generally used,—formerly very often without first seeking that advice and assistance which should only be sought from the medical man of long experience and careful observation. Indeed, the paroxysm of embarrassment of breathing is so very distressing, that an individual flies to every object which holds forth to him a promise of relief; and hence it is that the bold and impudent adventurer has so often chosen, as the province in which he will carry on his nefarious practice, diseases of the respiratory organs. A sufferer will have recourse to any remedy that he believes can control the disease, and for instantaneous relief he will encounter any difficulty. During the paroxysm, life is insupportable . . .

MOTHERS AND CHILDREN

(FROM A CORRESPONDENT)

THE seventh English-speaking Conference on Maternity and Child Welfare was held in the great hall of B.M.A. House on the first three days of June. The decision to hold it a month earlier than usual enabled many distinguished visitors who had come over for the Coronation to take part.

HISTORY OF THE CHILD WELFARE MOVEMENT

Reprints [1] of a brief history of the child welfare movement, written by Dr. G. F. McCleary, chairman of the Association of Maternity and Child Welfare Centres, were distributed beforehand to the delegates to enable those unfamiliar with the history of the movement to grasp how it came about. The urge to do something sprang from the *Congrès international des gouttes de lait* in Paris in 1905 at which were present, besides himself, Bailie W. F. Anderson and Dr. A. K. Chalmers of Glasgow, Dr. S. G. Moore and the late Alderman Benjamin Broadbent of Huddersfield. Largely owing to the influence of these British delegates the movement quickly took root in Britain and in June, 1906, the first Conference on Infantile Mortality was held in London under the presidency of Mr. John Burns, then chairman of the Local Government Board. But perhaps we must go further back than Dr McCleary to find the roots of the movement, amongst which may well be (1) the rapid fall of the birth-rate in France, (2) the terrible toll of death from infantile diarrhœa in hot summers, especially in 1899, (3) the fact that though preventive medicine had done much to reduce the incidence of disease and the general death-rate, it had so far done nothing to reduce infantile mortality, which stood constant between 100 and 200 per 1000 born, according to locality.

MATERNAL MORTALITY

The conference, organised by the National Association for the Prevention of Infantile Mortality of which Miss J. Halford has been hon. secretary since the first conference in 1906, was opened by Sir Kingsley Wood, Minister of Health, who spoke on the progress of midwifery practice in Britain during the past five years. He reported the maternal mortality for 1936 as the lowest for five years at 3·81 per 1000 live births; antenatal attention, he said, is now given to about 50 per cent. of pregnant women, and the number of women delivered in institutions has risen by 50 per cent. since 1932. He referred to the committee he has appointed to inquire into the practice of induced abortion and to the reports recently issued by his department on the so-called black areas. A delegate from the United States stated that her country compared favourably with ours in the reduction of child mortality but that the maternal mortality was much higher—about 6 per 1000. It should be borne in mind, however, that in the States the rate is not computed in exactly the same way as it is here, nor is it similar in all the States furnishing returns. Making allowances for differences of casting, maternal mortality of England is the lowest of any community speaking our common tongue, suggesting that English practice is the best expression of the traditional British approach to midwifery. Our rate is also lower than that of any country with midwifery traditions different from ours, with the possible exception of Scandinavia.

[1] Published in *Mother and Child, Lond.*, for June, 1937.

BACKWARD AREAS

At the first session two papers on welfare work amongst people living in primitive conditions overseas were presented, but not read: one by Dr. Mary Blacklock, formerly of Sierra Leone, the other by Dr. Mabel Brodie, now of Kedah, Malaya, and formerly of Durham county council. The writers spoke upon their papers and dominated the discussion, the most important points of which were the solution of the difficulties of welfare work amongst primitive races where approach must be different from what it is in England, and in places, such as parts of Australia, where populations are sparse and distances enormous. Of special interest were Dr. Blacklock's reference to the "hungry season" in Tropical Africa where the natives live mainly by rude agriculture and have recurrent seasons of short rations, often augmented by failure of crops; the obstruction to sound midwifery by tribal customs and religious prejudices and the difficulty of implanting what was best in the European system on what is good, or if not good must be tolerated, of local tradition and practice. It is surprising what progress has been made, especially as in many parts of the Empire the official health service has not the staff to attend to more than the rudiments of sanitary administration.

PROGRESSIVE LEGISLATION

At the second session, which considered progressive legislation in connexion with maternity and child welfare, the chief speakers were Mr. R. J. Howard Roberts of the London County Council and Miss Eleanor Harwarden of South Africa. Two interesting items of the discussion were a plea by Alderman Miss Kellett of Shoreditch for convalescent homes for mothers delivered in their own homes, and another by Councillor Schwann of West Ham for control of factory inspectors by local authorities. The latter is an old contention, somewhat outside child welfare proper, and it was not discussed. Dr. Ethel Cassie of Birmingham called attention to the fact that foster children can be dealt with under the maternity and child welfare authority only until they are five years old, after which age they must pass to the public assistance committee which under the Children Acts then take responsibility until the children are nine years old. This matter, now it has been raised, should be capable of adjustment without special legislation. At the same session, Mrs. Braddock of Liverpool restated her well-known objections to children's courts. Her views, if stated somewhat more softly, would meet with much sympathy.

OTHER TOPICS

Two sessions on the second day were devoted to the education of parents in the care of their children and to nutritional problems in relation to parent and child, Dame Enid Lyons of Australia presiding in the morning and Dr. R. E. Wodehouse, Deputy Minister of Public Health of Canada, in the afternoon. Papers by Dr. Eric Pritchard, Dr. Ursula Cox, and Mrs. Charlesworth (of Northampton Voluntary Infant Welfare Association), Dr. Robert McCance, and Dr. R. Jewesbury, describing situations not unfamiliar to the British section of the audience, were very welcome to the foreign visitors, for they brought out clearly our ordinary everyday English child welfare practice. Here was a case in which much was gained and nothing lost by presenting old matter with no new trimmings.

The last day touched more contentious subjects, psychology in the morning and orthopædics in the afternoon. The chairman at the former was Dr. J. F. Gaha, Minister of Health for Tasmania, and at the latter, Dr. Josephine Baker, representing the U.S.A. Government. The chief speakers on psychology were Dr. Margaret Lowenfeld, hon. director of the Institute of Child Psychology, and Dr. J. A. Hadfield, director of studies at the Tavistock Clinic. Both dealt with maladjustment and its prevention. Prof. Helen Koch of Chicago described an experiment in treating asocial children which is being tried with fair success in America. Prevention was the keynote of this session and the net result of the discussion was the impression that lack of parental love was the primary cause of asocial tendencies and neurotic perversions. There was more than a suspicion that over-anxiety to avoid the œdipus and electra complexes may lead to the rupture of what might be called the family love bond which ties the generations together and is the base of our social conventions.

At the last session Dr. B. E. Schlesinger (Royal Northern Hospital) spoke of the management of child rheumatism, and Mr. E. S. Evans (Heatherwood Hospital) on general orthopædics.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdr. A. W. Gunn, M.V.O., to *Hawkins*.

Surg. Lt.-Comdr. C. Cussen promoted to rank of Surg. Comdr.

Surg. Lt.-Comdrs. D. A. Newbery to *Pembroke* for R.N.B. and to *Sussex* (on recommg.); and E. E. Malone to *Shropshire*.

Surg. Lt.-Comdr. (D) J. C. Benson to *Victory* for R.N.B.

Surg. Lts. H. O'Connor to *Inglefield*; F. P. Ellis to *Victory* for R.N. Hospital, Haslar; G. H. C. R. Critien to *Resolution*; G. R. Rhodes to *Rochester*; D. B. Jack to *Wildfire*; and F. W. Baskerville to *Pembroke* for R.N.B. and to *Sussex* (on recommg.).

Surg. Lt. (D) K. E. J. Fletcher to *Suffolk*.

The Gilbert Blane Medal for 1937 has been awarded to Surg. Lt. W. J. Forbes Guild, M.B. St. And., of the R.N. Hospital, Portland.

Surg. Lt. G. S. Thoms (not G. S. Thomas, as stated last week) transferred to Permanent List.

ROYAL ARMY MEDICAL CORPS

TERRITORIAL ARMY

Capt. J. N. Russell to be Maj.

Lts. J. R. Hamerton and J. R. Dawson to be Capts.

The annual competition for the Territorial Army Ambulance Challenge Shield will be held at the Royal Army Medical College, Millbank, London, S.W.1, on Saturday, June 19th.

ROYAL AIR FORCE

Flying Offrs. promoted to the rank of Flight Lts.: R. F. Courtin, R. M. Outfin, J. H. Neal, D. G. Smith, R. H. Pratt, S. G. Gordon, J. C. Bowe, G. P. Jones, and J. G. Rountree.

Flight Lt. C. F. R. Briggs to R.A.F. Station, Honington.

Flying Offrs. W. T. Buckle to R.A.F. Station, Church Fenton, and D. W. I. Thomas to R.A.F. Station, Donibristle.

Dental Branch.—H. B. Shay is granted a non-permanent commission as a Flying Offr. for three years on the active list and is seconded for duty at Guy's Hospital.

Flying Offrs. A. P. Britton and A. J. S. Wilson promoted to the rank of Flight Lts.

INDIAN MEDICAL SERVICE

Col. I. M. Macrae, C.I.E., O.B.E., *K.H.P.*, to be Maj.-Gen.

Lt.-Col. W. L. Watson, O.B.E., to be Col.

Indian Medical Department.—Sub.-Maj. and Hon. Lt. *Rai Sahib* Madho Parshad to be Hon. Capt.

CORRESPONDENCE

ADLER AND THE GENERAL PRACTITIONER

To the Editor of THE LANCET

SIR,—May I add one thing to the excellent account of the late Prof. Adler in your issue of June 5th. It has been well said that a number of medical men after meeting Adler seemed to have found something entirely new and satisfying in their medical practice; not just new knowledge but a new outlook and a feeling that what they were doing was really worth while. I should like to corroborate that remark and I think the rapid success of the Medical Society of Individual Psychology, which now numbers 127 members, chiefly general practitioners, is evidence of its truth. No one attending those meetings can fail to observe the fresh interest which the Adlerian concept has stimulated in the members and the way in which the very type of case which was most tiresome to them has now become one of the most interesting. In view of the wide prevalence of the minor as well as the major forms of psychoneuroses I think it is clear that Adler's influence will play an important part in increasing the efficiency and helpfulness of general practice.

I am, Sir, yours faithfully,

W. LANGDON-BROWN.

Cavendish-square, W., June 25th.

DIAGNOSIS AND TREATMENT OF GASTRIC AND DUODENAL ULCER

To the Editor of THE LANCET

SIR,—Sir Arthur Hurst's comments on my paper require brief replies:—

1. *Carcinoma.*—I used the term "relatively" uncommon deliberately. One need hardly quote figures to show that one sees 1 case of carcinoma for every 10 or 12 of "simple" ulcer.

2. *Incidence of gastric and duodenal ulcer.*—Since the general population is composed as to 90 per cent. of the "hospital class," it is obvious that there need be no quarrel between Sir Arthur Hurst and myself on this score. Possibly the eminent writers of text-books have taken their figures exclusively from their rich patients. But I am still inclined to think that surgical experience determined the usually quoted figures of 4 duodenal to each gastric ulcer.

3. *Blood in stools.*—I specified the benzidine reaction. The spectroscope was not used, nor do I see the value of it in this connexion. One requires a test with a certain "threshold," very much as the Fehling reaction is designed to ignore the normal 100 mg. per 100 c.cm. of glucose in urine. The tests were performed by the biochemical laboratory of the hospital, under the direction of Mr. F. Morton, B.Sc., A.I.C. I cannot see that other statements made by Sir Arthur under this heading contradict anything written in my paper.

4. *Diagnosis.*—Sir Arthur has quoted from my paper in a way that has misrepresented what I said, which was that while iron deficiency was the most likely cause of anæmia with achlorhydria, it was safest to assume that ulcer was present until proof to the contrary was forthcoming, by negative stool tests, absence of blood from test-meal, and negative radiogram. I also, as stated in my paper, have not seen achlorhydria with duodenal ulcer. My incidence of achlorhydria with gastric ulcer was 2 in 39, Sir Arthur's is 1 in 114. No doubt if one accumulated several hundred cases the true incidence would be found, but I would not be particularly concerned if it were proved that I were wrong, and that achlorhydria does not occur in gastric ulcer. Faber and others have shown that "gastritis" with diminished acidity is the usual forerunner of ulcer; whether acid is absent or only just present probably depends merely on the number of functioning cells remaining.

5. Sir Arthur gives no reasons for his advocacy of surgery. I remain convinced, as stated in the paper, that beyond perforation, surgery is only justifiable for gross anatomical deformities which make life intolerable and which are unaffected by some months of "medical" treatment.

I am, Sir, yours faithfully,

Birmingham, June 6th. DUNCAN LEYS.

INFECTION THROUGH THE OLFACTORY MUCOSA

To the Editor of THE LANCET

SIR,—Not being a chemist by training I am diffident of entering too deeply into what may be a purely chemical controversy; nevertheless I believe that Dr. Pickworth's letter in your issue of May 1st merits some reply.

When our work was begun I was of Dr. Pickworth's opinion that we were using a chemical solution. However we soon discovered that, no matter what the origin of the many samples of potassium ferrocyanide and iron ammonium citrate we used, when equal volumes of 10 per cent. solution of these two chemicals are mixed, granules and aggregates of granules are formed. On first mixing the fluid remains clear, but after a few seconds turns cloudy. If this change be followed under the microscope it will be seen that the clouding is due to a formation of particles (singly or in aggregates) throughout the fluid. The particles vary in size but many are about 0·2 micron in diameter, which is of the same order of magnitude as the prussian-blue particles demonstrable in the tissues after fixation and only slightly smaller than pneumococci. They can be thrown out of suspension in an angle centrifuge, quite an appreciable amount being deposited in 15 minutes at 3500 r.p.m. We have also noted that the formation of these particles is brought about, in part, by visible wave-lengths at the blue end of the spectrum, actually by those waves shorter than 5000 A°. Any mixing of the two solutions by daylight will certainly cause the particles to form; moreover we have been unable to prevent the formation of particles, albeit in smaller numbers, even by carrying out the manipulations in the dark room.

As to the chemical nature of the particles or granules used, I believe that they are prussian blue. My belief is based largely on the personal assurance given me by many expert chemists. Perhaps also I may be allowed to quote from Mellor (Modern Inorganic Chemistry, 8th edition, London, 1936); he says that prussian blue "is formed when a solution of potassium ferrocyanide is added to a solution of a ferric salt. It is insoluble in hydrochloric acid, but soluble in oxalic acid forming a deep blue solution. Besides the 'insoluble' Prussian blue, a *soluble or colloidal Prussian blue* is formed when a ferric salt is added to a solution of potassium ferrocyanide or a ferrous salt to a solution of potassium ferricyanide. By the addition of salt to the solution, the 'soluble' Prussian blue is coagulated 'or salted out' and the

precipitate is then 'insoluble' Prussian blue." (The italics and inverted commas are Mellor's.)

It will be clear to Dr. Pickworth, I hope, that if I have misinterpreted Le Gros Clark I have done so not because of mere assumption on my part, but because our investigations had led to the belief that Clark *was* using a suspension of particles. Indeed it is difficult for me to believe that he did not, despite Dr. Pickworth's statements to the contrary. I must, however, take this opportunity of thanking Dr. Pickworth for again drawing my attention to this point and leading me to study the matter further. Since reading his letter I have reinvestigated most of the former work and have taken the further step of testing the behaviour of our mixture of potassium ferrocyanide and iron ammonium citrate when subjected to ultra-filtration through a Cellophane membrane. This has shown that soluble prussian blue in our mixture will pass through membranes which hold back serum proteins. It would seem, therefore, from this most recent work that, in actual fact, we are dealing with a suspension of prussian-blue particles in a solution of prussian blue. Any further information which Dr. Pickworth has on the point would be most welcome.

Finally, even leaving the "supposed passage of particles" out of the question, I cannot agree with Dr. Pickworth that I used bacteriological methods only. Surely he does not consider the direct microscopical demonstration of pneumococci in the perineural spaces, in the subarachnoid space, and in the cells of the pia mater within two minutes of their being instilled into the nose a bacteriological method only.

I am, Sir, yours faithfully,

G. W. RAKE.

Connaught Laboratories, University of Toronto, Canada, May 25th.

MIDDLE-EAR DISEASE

To the Editor of THE LANCET

SIR,—Otitis media is of perennial interest to general practitioners, and your weighty remarks thereon prompt me to record the following experience. At the end of 1930 I treated for a long time a man with the most profuse and persistent otorrhœa I can remember, and by the irony of fate it followed on the only paracentesis I had ever performed—I believe quite correctly. In despair he asked me to try anything short of operation so after some months I one day washed out his ear with staphylococcus antivirus liquid and left some of the fluid in situ. The result was dramatic, for he failed to come again as instructed, and when, after six days, I searched him out he said he was cured. Actually he had had no discharge for three days and only a slight dampness since. After a few more treatments his ear was quite dry and has remained so.

This was, I believe, the first such case ever treated in this way, and it was certainly the start of the fairly widely adopted treatment of otitis media by antivirus preparations (not that all cases respond so rapidly as he did). It is, unfortunately, often considered unscientific because it is said to lack a sound theoretical basis; but surely the scientific attitude is to observe and try to appreciate results and then seek to find the underlying theory. Whatever the rationale of the method may be, I know of no more convincing demonstration of the potency of a biological preparation than to watch the extraordinary way it will determine improvement in a few hours in an inflamed, and even bulging, ear drum, which may return to normal within two or three days. One of my earliest cases was that of my own little son, aged three, who for a whole day had been crying with earache while I tried the effect of one after another of the ordinary and proprietary preparations without avail. To watch him settle down to a quiet sleep within half an hour of instilling the antivirus was one of the most gratifying experiences of twenty-odd years' practice, and it has been no less satisfactory to hear of similar results in nearly every case of earache I have treated in this way since. Later on, at my suggestion, antivirus was put up in a jelly form which is much easier to use in these cases and gives results almost equally good.

Where the issues are so serious I would not like to seem to say a word against the operation of paracentesis, but I would like to urge that practitioners and otologists alike should carry a tube of antivirus jelly in their bags, and that they should instil some as soon as they have had a good look at the tympanum. They can then make preparations for paracentesis if they wish; but unless my almost consistent experience is exceptional they will usually find that in a short time the pain will have gone and the need for operation will have passed. What the effect would be in the so-called silent cases or tuberculous ones I do not know, nor do I prophesy, but I am sure that it is a line of treatment abundantly worth trying.

I am, Sir, yours faithfully,

Winsford, Cheshire, May 29th. W. N. LEAK.

LEFT INFRAMAMMARY PAIN

To the Editor of THE LANCET

SIR,—I read with much interest the article on this subject in your issue of May 29th by Drs. Shirley Smith, Stephen Hall, and Jocelyn Patterson, especially on "the disturbance of the heart muscle either from lack of sugar supply or inability to metabolise sugar." Having had a large experience of such cases in hospital and private practice I would like to refer to the more common causes of this pain and effective methods for its relief. Exposure of the chest to cold, physical fatigue, and a rheumatic temperament are among the many causes of this trouble. Treatment: after consideration of the history, occupation, and temperament and a thorough examination of the heart and circulation have been made with a negative result, the probability is that the intercostal muscles are affected and that rest is the more hopeful method of giving relief. I have several strips of plaster about 1½ in. wide of sufficient length to extend from the spine to the middle of the chest in front. If possible the patient stands erect steadifixing his body by holding his hand to a mantelpiece; the plaster is first fixed on the spine and firmly brought round the side of the chest. Three or four strips are generally sufficient. The effect is sometimes quite dramatic. For the next few days treatment of the possible cause is carried on. If after removal of the strips the pain remains the treatment is repeated. At times a dull ache remains, when a liniment containing menthol and methyl salicylate will complete the cure. I am, Sir, yours faithfully,

CHARLES W. CHAPMAN.

Wimpole-street, W., June 8th.

METHODS OF DESTROYING BED-BUGS

To the Editor of THE LANCET

SIR,—In your issue of May 1st Mr. J. M. Holborn makes certain criticisms of the use of heavy coal-tar naphtha for the destruction of bed-bugs, according to the method we described (*Lancet*, Feb. 27th, 1937,

p. 530). To these criticisms we offer the following reply :—

(1) *Toxicity to insects.*—To ensure a 100 per cent. kill of both insects and eggs at a temperature of 65–70° F. an exposure of at least 18 hours is necessary and we are not surprised at the poor results obtained by Mr. Holborn in an experiment using an exposure of only 6 hours.

(2) *Toxicity to man and animals.*—Naphtha vapour has an irritant action on the eyes and for this reason gas-masks are worn during fumigation. The specification framed to govern the supply of naphtha makes no attempt to ensure the absence of mesitylene. A proportion of this, together with its isomer pseudocumene, is present; but from the results of an extensive series of toxicity experiments with animals we are satisfied that danger to man from this constituent, or the naphtha in its entirety, is not to be apprehended.

(3) *Fire and explosion risk.*—While all reasonable care must be exercised when naphtha is being handled or sprayed we are of opinion that the concentration of vapour which might be expected to leak into adjoining premises would not inflame when brought into contact with a naked light. In regard to explosion risk, the vapour concentration at 65° F. is only one-eighth of the lowest explosive concentration.

(4) *Odour.*—The odour of naphtha vapour is penetrating but not unpleasant, and few complaints have been received from the occupants of adjoining houses.

We should like to emphasise that whilst naphtha is also a contact insecticide, it is the lethal property of the vapour which makes it so efficacious for the destruction of bed-bugs in infested houses. Since our original publication we have improved the technique of distributing the vapour in rooms by the use of blankets wetted with naphtha and suspended near the ceiling and down the walls. In this way all likely harbourages, including ceiling cracks, will receive a lethal concentration of vapour. Mr. Holborn points out that the quantity of naphtha used is ten times the lethal dose, and it may be stated that this amount is necessary to allow for loss of vapour through diffusion, absorption, and air changes.

Mr. Holborn, and later Mr. Mellanby, indicate the possibilities of contact insecticides for use in occupied houses. Such measures are helpful in dealing with a light infestation, but in our opinion a heavy infestation can only be dealt with successfully by a fumigation process. The premises must be vacated but the furniture can be treated in situ with heavy naphtha. Experiments have been carried out which promise well for the use of heavy naphtha for van fumigation, and further research in this direction is in progress.

We agree as to the desirability of knowing the nature and amounts of the toxic constituents, and would point out that research into this question is in hand. If and when this information is available it must not be forgotten that the isolation of the lethal constituent or constituents would give a product of greatly increased price, and unless possessed of exceptional properties, this would hardly be expected to replace naphtha for practical fumigation purposes.

We are, Sir, yours faithfully,

S. A. ASHMORE,
Government Laboratory, Clements Inn Passage; and
A. W. MCKENNY HUGHES,
Dept. of Entomology, British Museum (Natural History).

June 5th.

OBITUARY

WILLIAM FRYER HARVEY, M.B. Oxon.

Dr. W. F. Harvey, who died on June 4th at his home in Letchworth at the age of 52, was an Oxford medical graduate, qualifying belatedly in 1917 after a period of ill health. But his chosen profession early surrendered him to letters, where his heart was from the beginning. One of a family of seven brothers and sisters in a household full of intellectual stimulus, he was always reading widely and desultorily, and even as a child was rarely to be seen without a pencil in his hand. His book entitled "We were Seven" which appeared less than a year ago, contains a series of contemporaneous pictures of his youth; for he was able apparently in writing it to reproduce his own feelings at the time of the happenings, so that the book is neither a biography nor a psychological study, but is an inquiry into the mind of the child in a happy family circle. Not that he lacked the faculty of judging parenthood, as is evident to those who noted his initials at the foot of a bogus report of the Hampstead branch of the Parent Study Association (*Lancet*, May 6th, 1933) when the "problem parent" was submitted to careful analysis; and yet kindly analysis, for Harvey's great interest was in the foibles of good people, and as a satirist of the Society of Friends, to which he belonged, he did it a valuable service. Accounts of his life in the daily press have laid stress on an act of heroism when he was surgeon-lieutenant in the Navy and completed an amputation on a wounded fellow officer in the engine-room of a sinking destroyer. For this act he was awarded the high distinction of the Albert medal; but the incident almost escaped record because Harvey forgot about it himself, taking it simply in his stride as part of war-time medical work. Pacific himself in thought and in practice he was always unwilling to accept security at the expense of others' danger and hazard.

Dr. Harvey married Miss Margaret Henderson. He leaves two children, a boy and a girl.

CHARLES H. SHORNEY WEBB, M.S. Lond., F.R.C.S. Eng.

ON June 1st Mr. Shorney Webb died of infective endocarditis in the Middlesex Hospital where he received his medical education and where for a dozen years, before the breakdown that crippled his life, he had been a brilliant member of the honorary surgical staff. Webb, writes a former surgical colleague, had a fine academic career, gaining honours and distinctions not only in the Middlesex school but also in the University of London; he was only the fourth Middlesex student to secure the M.S. degree, and obtained marks qualifying for the gold medal on that occasion. During his tenure of a surgical registrarship at the hospital the wanderlust seized him, and he served in the Balkan campaign of 1912; in 1914 the first day of the late war saw him eager alike for adventure and to place his talents at the disposal of the British wounded. Webb landed in the original Expeditionary Force with the fourth casualty clearing station, a unit with which he remained until 1918, when he was appointed to the charge of a surgical division of the 24th general hospital at Etaples. At a time when opinion was still divided as to the desirability of exploration for gunshot wounds of the abdomen, he was one of the first to operate for this type of injury. To Owen Richards, of course, belongs the credit of demonstrating and of urging the need of surgery in these particular

wounds of warfare, but the first considerable communication dealing with the subject was written by Webb and Milligan.

Elected in absentia to the honorary staff of his old hospital during the war years, he did not assume his duties until after the armistice. Possessed of a far greater operative experience than usually belongs to a newly appointed assistant surgeon, Webb proved himself also a fine teacher, acquiring a popularity with the students akin to that which he had enjoyed among his colleagues in his early days and in France, while his surgical advice and services were sought by his colleagues and their families. And later, when he was again able to lead an active life, he became a valued operating surgeon to the Middlesex county council.

Webb's gifts were many. He was a fine linguist; a lover of music, he played piano and organ; he loved churches and old ecclesiastical architecture; and the memory may still linger in the minds of his war-comrades of the strains of some church organ, by strange caprice intact, pealing forth from a ruined church without roof, with walls wide open to the air, an anthem perchance strange to the rude ears of that time, and within a debonair surgeon playing intently and with an exquisite skill. G. G.-T.

PUBLIC HEALTH

The New Scottish Maternity Services

THIS week local authorities of Scotland have been called upon to submit schemes under the Maternity Services (Scotland) Act, 1937, which came into operation on May 16th. The schemes must secure that there are available to every woman who is to be confined in her own home and who applies to the local authority, facilities for:—

(*a*) the services of a certified midwife before and during childbirth and until the end of the lying-in period;
(*b*) medical examination and treatment during pregnancy, including at least three prenatal examinations;
(*c*) medical supervision during childbirth and the lying-in period;
(*d*) medical examination at least once after the expiry of one month after childbirth;
(*e*) the services of an anæsthetist when recommended by the medical practitioner; and
(*f*) the services of an obstetrician where necessary and practicable.

The general object of the Act is to provide, for women who are to be confined in their own homes, care and treatment based on the team-work of doctor, midwife, and consultant. This is a much wider object than that of the English Act of last year, which provided only for a service of midwives. The maternal death-rate is much higher in Scotland than in England and the conditions of midwifery practice are different, doctors engaging in it to a greater extent. A Government grant, equivalent to half the additional expenditure involved but scaled up or down according to the needs of the area, will be payable on the new schemes. Fees will be paid by the women in so far as they are able to pay, but no charges will be made to the necessitous, and insured women, the wives of insured men, and others in like economic circumstances are likely to obtain the whole range of services for an inclusive fee that will be little, if at all, more than they pay at present for a midwife alone. Local authorities are asked to aim at giving the women as wide a choice as is practicable of doctor and midwife. Though they must provide the services specified in the Act, they will have a fairly free hand in the actual arrangements they may make. Thus they may arrange to have the midwifery service provided through voluntary associations, or they may themselves pay midwives in private practice on a fee basis, or they may employ a whole-time salaried staff of midwives. As regards the medical services, the Department suggest that probably most authorities will throw this service open to all general practitioners who desire to take part in it. The Department, however, will be prepared to consider alternative proposals. The remuneration of the doctors to be employed is under discussion.

Consulting obstetricians, the Department say, should be obtainable in the four teaching centres and surrounding areas and in places where maternity hospitals employing resident obstetricians have been established. "If obstetrical specialists are made widely available throughout Scotland, a great step will have been taken towards raising the standard of domiciliary midwifery. Accordingly, the Department will expect local authorities to make every reasonable effort to overcome any difficulties with which they may be faced" in obtaining this expert service.

Compensation will be paid to midwives who, within a specified period, surrender their certificates either voluntarily or by direction of the local authority. Half the cost of this compensation will be refunded by the State.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 29TH, 1937

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 1477; diphtheria, 916; enteric fever, 28; pneumonia (primary or influenzal), 765; puerperal fever, 39; puerperal pyrexia, 138; cerebro-spinal fever, 24; acute poliomyelitis, 9; polio-encephalitis, 1; encephalitis lethargica, 5; continued fever, 1 (St. Pancras); dysentery, 26; ophthalmia neonatorum, 94. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on June 4th was 2948 which included: Scarlet fever, 750; diphtheria, 843; measles, 84; whooping-cough, 485; puerperal fever, 23 mothers (plus 14 babies); encephalitis lethargica, 282; poliomyelitis, 1. At St. Margaret's Hospital there were 27 babies (plus 18 mothers) with ophthalmia neonatorum.

Deaths.—In 123 great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 16 (0) from measles, 4 (1) from scarlet fever, 11 (4) from whooping-cough, 25 (4) from diphtheria, 60 (15) from diarrhœa and enteritis under two years, and 22 (5) from influenza. The figures in parentheses are those for London itself.

Tottenham and Nottingham each had one death from enteric fever; Birmingham 3 deaths from measles. There were 3 fatal cases of diarrhœa at Croydon, Liverpool, Birmingham, and Stoke-on-Trent.

The number of stillbirths notified during the week was 307 (corresponding to a rate of 39 per 1000 total births), including 41 in London.

CENTENARY OF CARDIFF ROYAL INFIRMARY.—During last week as part of the centenary appeal of this hospital for £250,000 a special service was held at St. John's Church and a centenary commemoration dinner at the City Hall, at which Lord Horder was the principal guest. On June 6th Lord Dawson broadcast an appeal for the hospital on the National Programme.

MEDICAL NEWS

University of Oxford

Dr. A. H. T. Robb-Smith, lecturer in morbid anatomy and histology at St. Bartholomew's Hospital, has been appointed assistant director of pathology under Lord Nuffield's benefaction as from Sept. 1st.

Dr. Robb-Smith was educated at Epsom College and St. Bartholomew's Hospital. He graduated M.B. in 1930 and after holding resident appointments at St. Bartholomew's was made junior demonstrator of clinical pathology; in 1933 he became senior demonstrator of pathology. The following year he was awarded a Dorothy Temple Cross research fellowship by the Medical Research Council and was granted leave for a year's work abroad under Prof. Ludwig Aschoff at Freiburg and under Dr. del Rio Hortega in Madrid. On returning to England in 1936 he became lecturer in morbid anatomy and histology at St. Bartholomew's and in the same year was awarded the university gold medal for his M.D. thesis on hyperplasia and neoplasia of the lympho-reticular tissue.

University of Cambridge

Prof. H. R. Dean, F.R.C.P., Master of Trinity Hall, has been elected vice-chancellor of the University.

Titles of degrees have lately been conferred on the following:—

M.B., B.Chir.—J. C. Drury.

M.B.—M. E. Barnard, D. M. Norman-Jones, and O. K. Wilson.

An announcement will be found in our advertisement columns of an E. G. Fearnsides scholarship for clinical research on the organic diseases of the nervous system which is open to men or women who have passed the Third M.B. examination or Part II of the natural sciences tripos. Applications should be sent to university registrary before July 12th.

University of London

At recent examinations the following candidates were successful:—

THIRD EXAMINATION FOR M.B., B.S.

A. S. Aldis, B.Sc. (*e*), Univ. Coll.; M.S. Campbell (*a*), Middlesex; H. W. C. Fuller (*a, b, d, and University medal*) and A. J. Heriot (*b*), King's Coll.; H. N. G. Hudson (*b*), Middlesex; Joseph Ketcher (*b*), London; C. J. Longland (*a*), St. Bart.'s; Elizabeth J. Rooke (*e*), Univ. Coll.; F. H. Scadding (*a*), Middlesex; and R. C. Wofinden (*c, e*), St. Mary's (all with honours). H. I. C. Balfour, St. Bart.'s; J. D. Ball, Middlesex; Marjorie Bolton, Roy. Free; E. R. Bowes, Guy's; M. A. Carpenter and J. E. Cates, St. Bart.'s; Norah H. C. Clarke and May D. C. Clifford, Roy. Free; P. R. K. Coe, Westminster; J. C. Colbeck, Guy's; W. J. C. Crisp, Univ. Coll.; J. A. Currie, St. Thomas's; J. B. Cuthbert, St. Bart.'s; Mary D. Daley, Roy. Free; H. J. Davies, Univ. Coll.; G. S. W. de Saram, St. Bart.'s and Ceylon Med. Coll.; W. R. S. Doll, St. Thomas's; I. A. Donaldson, Middlesex; A. C. Dornhorst, St. Thomas's; G. H. H. Dunkerton, King's Coll.; J. A. Dunlop, St. Thomas's; Katherine W. Dunn-Pattison, Roy. Free; H. J. Eastes, Univ. Coll.; Gwendoline M. Edwards, Roy. Free; J. E. Elliott, Guy's; J. G. Fife, St. Mary's; Audrey I. Freeth and Dorothy M. Gladwell, Roy. Free; C. H. Gray and Max Hamilton, Univ. Coll.; D. R. Hanbury, Middlesex; J. C. Harland, Westminster; G. A. Hart, St. Thomas's; Sylvia A. M. Herford, Roy. Free; J. R. Hill, St. Bart.'s; J. D. N. Hill, St. Thomas's; T. H. Hills, Guy's; Jacob Horowitz, Univ. Coll.; T. E. Howell, Guy's; Sybil M. Humphreys, Univ. Coll.; B. W. Hunt, Guy's; Islwyn Hywel Davies, Middlesex; T. P. N. Jenkins, Univ. Coll.; Mary Kane, Univ. Coll., Cardiff; J. W. M. Leslie, St. Thomas's; Mabel E. Linscott, Roy. Free; Oswald Lloyd, Middlesex; D. de la C. MacCarthy and T. O. McKane, St. Bart.'s; K. J. Mann, Univ. Coll.; Queenie I. E. May, Roy. Free; A. E. Miller, Middlesex; A. G. Moore, St. Thomas's; Margaret J. Moore, Roy. Free; M. A. H. Munshi, Univ. Coll.; N. W. N. Murray, King's Coll.; Winifred F. G. Murray, Roy. Free; B. B. G. Nehaul, Univ. Coll.; J. H. L. Newnham, London; H. A. Pearce, St. Bart.'s; Faith C. Poles, Univ. Coll.; M. C. T. Reilly, St. Mary's; Elizabeth H. Rosenberg, Roy. Free; H. L. M. Roualle and L. J. Sandell, St. Bart.'s; R. S. F. Schilling, St. Thomas's; Alexander Shapiro, Univ. Coll.; C. P. Smith, Middlesex; Eveline A. Smith, Univ. Coll.; R. Y. Stevenson, St. Bart.'s; Ethel M. Strong, Roy. Free; R. W. Taylor, St. Bart.'s; C. E. Thomas, St. Mary's; Nest Thomas, Roy. Free; P. H. Tooley, London; H. A. Tuck, Westminster; R. G. Tuke, St. Thomas's; Sarah C. B. Walker, Roy. Free; A. J. N. Warrack, St. Thomas's; Lilian H. Walter and Joan M. Wenn, Roy. Free; E. D. H. Williams, Guy's; P. C. F. Wingate, St. Mary's; Rowena Woolf, Roy. Free; and S. S. Yudkin, Univ. Coll.

The following students have passed in one of the two groups of subjects:—

Group I.—Laura M. Bates, John Bleakley, Katharine M. H. Branson, F. J. Brice, K. C. Brown, Margaret M. Burton, Dorothy R. Clarke, A. L. Collins, G. H. Darke, Cecile R. Doniger, Gertrude L. E. Dudderidge, Mary N. Fawcett, W. B. Foster, J. P. Fox, W. A. J. Fox, Audrey U. Fraser, Rachel Goldenberg, J. H. Goonewardene, Douglas Graham Brown, A. G. Hemsley, George Herbert, K. R. Hill, Jack Hoadley, J. G. Humble, Harry Jackson, S. J. Johnson, Arthur Jordan, Harry Josephs, Gladys E. Keith, A. R. R. Kent, B. S. Kent, G. M. Kerr, Iris M. Lamey, J. D. Laycock, O. C. Levine, B. G. A. Lilwall, A. E. Loden, Myer Lubran, W. H. McDonald, H. A. C. Mason, D. W. Moynagh, Mary G. Murphy, J. H. F. Norbury, M. G. O'Flynn, A. C. D. Parsons, Edith A. S. Parry-Evans, V. G. Peckar, W. M. Philip, R. E. A. Price, Nancy E. G. Richardson, A. C. Ricks, G. C. Tresidder, P. W. Vilain, R. R. Willcox, and M. R. Woods.

Group II.—Mary J. Allardice, D. R. Ashton, D. W. Beynon, T. K. Bradford, J. D. Bradley-Watson, D. W. J. Cohen, Montague Curwen, P. H. Denton, J. E. Ennis, E. H. Hambly, D. H. Harrison, R. A. Jones, E. R. Mountjoy, Nallarakuppillai Ponnampalam, S. H. Raza, Mary C. Rowe, C. P. Sames, J. A. Smart, E. R. Smith, G. R. Steed, G. A. van Someren, and G. R. Waterman.

(*a*) distinguished in medicine. (*b*) distinguished in pathology. (*c*) distinguished in forensic medicine and hygiene. (*d*) distinguished in surgery. (*e*) distinguished in obstetrics and gynæcology.

Applications are invited not later than July 1st for the Laura de Saliceto studentship for the advancement of cancer research which is worth £150 a year and is tenable for not less than two years. Further information may be had from the academic registrar of the University, W.C.1.

Society of Apothecaries of London

The following candidates have satisfied the examiners for the Mastery of Midwifery:—

Isobel McA. Brown, Henry Canwarden, M. S. B. A. Hamid, Bessie Hatherley, Stanley Henderson, Isabella A. Milne, Margaret C. O'Brien, and A. A. Weinbrenn.

Royal College of Physicians of Edinburgh

On Thursday and Friday, June 17th and 18th, at 5 P.M., Dr. R. G. Gordon will deliver the Morison lectures to the College. He will speak on the neuropsychological basis of conduct disorder.

Royal Faculty of Physicians and Surgeons of Glasgow

At a meeting of the faculty held on June 7th, with Prof. Archibald Young, the president, in the chair, the following candidates were admitted to the fellowship:—

Mohamed Salleh Bin Abdul Hamid (London); James Holmes Hutchison and Herbert Derek Brown Kelly (Glasgow); Bal Krishna and Kedar Nath Sinha (London); and Helen Frances Wingate (Glasgow).

Oxford Ophthalmological Congress

The twenty-sixth annual meeting of the Oxford Ophthalmological Congress, founded by the late Robert W. Doyne, will be held on July 8th, 9th, and 10th, at Keble College, Oxford. The members will be welcomed by Mr. C. G. Russ Wood (Oxford), the master, and afterwards Mr. N. Bishop Harman (London), and Mr. Arnold Sorsby (London), will open a discussion on the problem of myopia, and Mr. T. Harrison Butler (Birmingham) will read a paper on lenticonus posterior and allied anomalies at the posterior pole. In the afternoon Group-Captain W. Guilfoyle will describe the experiences of an uniocular pilot of aircraft and Wing-Commander P. C. Livingston will discuss the same subject. Mr. Bernard Chavasse (Liverpool) will speak on the transconjunctival approach to the inferior oblique. On the second day of the meeting Sir Walter Langdon-Brown will read a paper on hormones and vitamins in ophthalmology. Dr. Arthur J. Bedell will give a demonstration of photographs of the fundus in colour with a clinical digest. The Doyne memorial lecture was to have been given by the late Dr. David James Wood (Cape Town), who died suddenly on March 18th. He had completed his paper on night blindness, shortly before his death, and it will be read to the meeting by his colleague Dr. R. C. J. Meyer (Johannesburg). Papers will be read in the afternoon by Prof. Joseph Imre (Budapest) on plastic surgery of the eyelids, by Dr. Joseph Dallos (Budapest) on the individual fitting of contact glasses, and by Mr. J. W. Tudor Thomas (Cardiff) on the technique of corneal transplantation, with recent modifications. After the annual general meeting on the morning of July 10th, Dr. Bernard Samuels (New York) will speak on the histopathology of papilloedema, Mr. E. F. King (London) on the classification of the ocular melanomata, and Dr. D. V. Girl (Eastbourne) on a new method of advancement with a single one-armed suture. The annual dinner of the congress will take place on July 8th. Further information may be had from the secretary of the congress, Dr. F. A. Anderson, 12, St. John's-hill, Shrewsbury.

University College Hospital

Men students of University College Hospital who have held a resident appointment there are invited to apply for a Bilton Pollard fellowship of an annual value of £650. Further particulars will be found in our advertisement columns.

London Hospital

The King has consented to become patron of this hospital. Queen Mary will continue to hold the office of president. As a memorial to the late Sir Ernest Morris, it is proposed to extend the clinical laboratories, towards the cost of which he had collected £3000.

St. Bartholomew's Hospital

Particulars are given in the Medical Diary in another column of a post-graduate course which will be held at this hospital on June 17th, 18th, and 19th. The course is open to all medical men but early application should be made to the dean of the hospital.

Pharmaceutical Society of Great Britain

At the June council meeting Mr. Thomas Marns was re-elected president, Mr. E. T. Neathercoat was re-elected treasurer, and Mr. Thomas Guthrie was elected vice-president. Mr. J. H. Franklin was coöpted a member of the council to fill the vacancy caused by the death of Mr. E. H. Simmons.

Joint Tuberculosis Council

At the May meeting it was announced that 750 copies of the Council's memo on Tuberculosis Among Nurses had been printed and that the Medical Research Council were considering the republication of the memos by Drs. W. H. Tytler and Peter Edwards on The Microscopic and Cultural Examination of Sputum. After a discussion on the Empire Conference on the Care and After Care of the Tuberculous it was decided to form a committee—comprising Dr. S. Vere Pearson (convener), Profs. W. W. Jameson and S. Lyle Cummins, with Drs. Jane Walker, J. B. McDougall, F. R. G. Heaf, and F. W. Goodbody—"to consider what help this council can give the colonies in their effort to control tuberculosis." The question of holidays with pay was placed on the agenda for the next meeting.

Medical Tour to Russia

The Society for Cultural Relations is this year again organising a tour for medical visitors to the Soviet Union. The group will leave London on July 17th and visits will be paid to Leningrad, Moscow, Kharkov, and Kiev. They will return to London on August 8th. Opportunities will be given to members to visit hospitals, dispensaries attached to factories, venereal disease clinics, and prophylactoria (preventive clinics). A member of the society's medical and public health section will lead the group, and if possible arrangements will be made for members to see any specialised branch of medicine in which they are interested. Further information may be had from the secretary of the society, 98, Gower-street, London, W.C.1.

Fellowship of Medicine and Post-Graduate Medical Association

An all-day course in gynæcology will take place at the Chelsea Hospital for Women from June 14th to June 26th. Courses have been arranged for M.R.C.P. candidates in neurology at the West End Hospital for Nervous Diseases, in the afternoon (June 21st to July 3rd); in tuberculosis at Preston Hall, Maidstone, on July 3rd. Other courses will be held in proctology at St. Mark's Hospital (July 5th to 10th); in dermatology at the Hospital for Diseases of the Skin, Blackfriars (afternoons, July 12th to 24th); in urology, at All Saints' Hospital (afternoons, July 12th to 31st). Week-end courses will be given in general surgery at the Prince of Wales's Hospital (June 19th and 20th); in diseases of the heart and lungs at the London Chest Hospital, Victoria Park (July 3rd and 4th); in medicine and surgery at the Miller General Hospital (July 10th and 11th). Courses are open only to members, and full particulars may be had from the secretary of the Fellowship, 1, Wimpole-street, London, W.1.

St. Thomas's Hospital

On Tuesday, June 29th, at 3 P.M., Sir Farquhar Buzzard, regius professor of medicine in the University of Oxford, will distribute the prizes at this hospital.

Birmingham Hospitals Centre

It is thought that a portion of this great centre may be open next spring. The foundation stone was laid in October, 1934. The first part of the scheme comprises a general hospital of 500 beds complete with all services, a nurses' home, and the medical school buildings. The nurses' home will accommodate 350.

A Fever Hospital in Spain

In view of the increasing danger of epidemics in Spain the Holborn and West Central London Committee for Spanish Medical Aid (6, Gordon-square, W.C.1) was asked a month ago to provide a bacteriologist and equipment for a fever hospital on the Madrid front. Within a fortnight it had sent out to Valencia a doctor, a bacteriologist, and an assistant, with enough material for a small laboratory. An hotel has been taken over at Cuenca, 70 miles from Madrid, which will hold 150–200 patients, but it lacks equipment. Beds, bedding, and linen can be bought cheaply in Spain, and money for this is urgently needed. The initial outlay was £300, and the bacteriologist has now called for a further £200 for buying additional equipment in Spain. The committee is at present able to send only £50 and is trying to raise the further £150 within a week.

Prostitution and Venereal Disease

The International Abolitionist Federation held a congress in Paris from May 20th to 22nd, when a number of delegates, both French and foreign, paid tribute to the Minister for Public Health, M. Henri Sellier, for taking responsibility for the first Bill introduced by a French Government which forbids traffic in women in all its manifestations. After hearing reports from Dr. Hermans (Holland), Prof. Gemähling (France), and Miss Alison Neilans (general secretary of the Association for Moral and Social Hygiene), the congress adopted resolutions pointing out that prostitution cannot in itself constitute a punishable offence, but that public authorities cannot be indifferent to its public manifestations. The measures adopted to stop street solicitation must be applied to men as well as to women; their enforcement should be entrusted to the common-law police and must not be arbitrary. A service of women police should be everywhere established, with the special duty of assuring the protection of children and to give assistance to women who need their help. The rôle of the law, in combating prostitution, should consist, above all, in forbidding procuration in all its forms. The modern struggle against venereal diseases must be based on liberty; treatment must be voluntary, free, and confidential, and it is unjustifiable to impose coercive measures on certain sections of the population.

Appointments

BOYD, M. R. E., M.B. Dubl., Lady Resident Medical Officer at the Ilford Maternity Home.

CRAIG, JENNY D., M.B. Manch., Assistant School Medical Officer for Huddersfield.

DIGGLE, W. S., M.Ch. Orth. Liverp., F.R.C.S. Eng., Hon. Orthopædic Surgeon to the Bootle General Hospital.

FLEMING, H. T., M.B. Dubl., F.R.C.S. Eng. and Irel., Surgeon-Superintendent at the Fermanagh County Hospital, Enniskillen.

GRAY, S. T. G., M.B. Aberd., D.P.H., Assistant County Medical Officer and Assistant School Medical Officer for West Suffolk.

MCGUCKIN, FRANCIS, M.D. Durh., F.R.C.S. Edin., Hon. Assistant to the Throat and Ear Department of the Royal Victoria Infirmary, Newcastle-upon-Tyne.

RACKOW, A. M., M.B. Lond., D.M.R.E., Hon. Radiologist to the Princess Louise Kensington Hospital for Children.

ROSE, I., M.B. Leeds, Resident Medical Officer at the St. Helen General Hospital, Barnsley.

SAINT, J. H., M.D. Durh., M.S. Minn., F.R.C.S. Eng., F.A.C.S., Hon. Assistant Surgeon to the Royal Victoria Infirmary, Newcastle-upon-Tyne.

SCHOLEFIELD, JOHN, M.B. Leeds, F.R.C.S. Eng., Resident Surgical Officer at the Prince of Wales's Hospital, Plymouth.

Certifying Surgeon under the Factory and Workshop Acts: Dr. J. L. HILL (Newport District, Monmouth); Dr. J. S. MOORE (St. Austell District, Cornwall).

PARLIAMENTARY INTELLIGENCE

HEALTH AND HOUSING

IN committee of the House of Commons on June 8th, on a supply vote for the Ministry of Health, Sir KINGSLEY WOOD, Minister of Health, said that the estimates for health services amounted to over £22,000,000, and the total for all the departmental services reached £166,000,000. There was an increase of over £500,000 compared with the current year. The slum clearance campaign was responsible for an additional sum of £500,000 in respect of new houses, and a new item in the estimates was £207,000 for grants under the Midwives Act which would come into operation in a few weeks. Considerable activity had been displayed by local authorities in the provision and extension of sewers and the disposal of sewage, and there had been increased provision for public recreation. In 1926 the total amount of loans for public recreation was £1,260,000; last year it was £3,200,000.

THE PUBLIC HEALTH BALANCE-SHEET

Taking the credit side of the public health balance-sheet, he could say that motherhood was safer than it had been for 16 years, inasmuch as maternal mortality for every 1000 live births was the lowest recorded since 1922. The tuberculosis death-rate continued to decline, and there had been a steady decline in mortality from infectious disease. There had also been a substantial decrease in the prevalence of diphtheria. There was, however, another side to the balance-sheet—cancer. While many more lives were now being saved by early diagnosis of the disease, cancer remained one of the most deadly enemies of mankind, and was the single heaviest item on the debit side of the national health balance-sheet. Colds and influenza still accounted for nearly a quarter of the absences from work in this country, and while it was true that last year's influenza epidemic was what was called clinically mild, he could assure the committee, on the best authority, that there was not likely to be a further visitation on the same scale for two years.

MOVEMENTS OF POPULATION

The estimated mid-year population in 1936 of England and Wales was 40,839,000, an increase of 194,000 over the estimated mid-year population figure for 1935. The total number of births was 605,292, the birth-rate per 1000 living being 14·8, or 0·1 per cent. higher than for 1935 and 0·4 above that of 1933, the lowest on record in this country. There were 495,764 deaths, and the crude death-rate per 1000 of the population was 12·1. This was 0·4 per 1000 higher than in 1935 and 0·7 above that of 1930, the lowest on record. The problem of population in this country was engaging increasing public attention, and was a vital matter. Certain facts were already known in connexion with it but before they could properly consider it they would certainly need to know many more. The birth-rate, which in 1875 was 35·4 per 1000 living, had now fallen to 14·8. He was told that to-day mothers had about half the number of children which their grandmothers had, and they knew, for instance, that in the next 15 years the total number of children aged five and over in public elementary schools might fall by as much as 1,000,000. The population in the immediate future would contain a much larger proportion of older people. They could not, of course, say if all those conditions would continue; it was not necessary to be pessimistic about the matter as to whether, for instance, they would have to take into account a stationary or a declining population. Two inquiries were in progress on this matter, one by the Registrar-General, and the other by the Population Investigation Committee, a voluntary body under the chairmanship of Prof. Carr-Saunders. There was close coöperation between the two inquiries. The present methods of obtaining and keeping important vital statistics concerning this matter were unsatisfactory and incomplete, and further information was undoubtedly necessary in connexion with fertility. The existing birth-rate statistics showed the number of children born in the population as a whole, but fertility statistics must relate to births of particular parents, and show the kind of parents and in what conditions they produced many or few children. Other particulars required were the ages of the parents, the duration of the marriage, the dates and order of the births, and matters of that kind. If those facts were available it would be possible to investigate much more adequately the conditions and circumstances which appeared to encourage or discourage the production of children. He was considering the best steps that could be taken to see that these particulars were procured with due regard to their confidential and personal nature.

BUILDING PROGRAMME

There had been a record total in house building with the erection of some 346,000 houses, compared with 325,000 last year and 329,000 in 1934–35. Rural housing presented its own special problems, and rural district councils were now concentrating on slum clearance, and their original programmes had been increased by approximately two-thirds. The present programme covered some 55,000 houses, of which nearly 23,000 were to be dealt with under clearance orders. He had asked the central advisory council to consider further steps so far as rural housing was concerned. He hoped to receive a report soon and would then consider what further action might be necessary in the light of the report. He would ask the House to approve at a later date the extension of the present rate of subsidy both for slum clearance and for the abatement of overcrowding so as to apply it to houses completed up to Dec. 31st, 1938.

NOTES ON CURRENT TOPICS

Milk-supply and Animal Diseases

On June 7th in committee of the House of Commons, on a vote for the Ministry of Agriculture, the Minister, Mr. W. S. MORRISON, said that the milk scheme had, so far, rendered possible a start on the great question of improving the quality and increasing the consumption of this vital food. In the last financial year the amount of milk sold in the liquid market increased by 12,500,000 gallons and the quantity for manufacture had increased by 8,000,000 gallons. There had been an immense increase in the number of persons producing milk which reached an accredited standard. Before the scheme was introduced there were only 800 Grade A licences, but now there were nearly 20,000 producers of milk of accredited standard.

With regard to poultry disease, the technical committee which had been set up was considering the present methods of distribution of hatching eggs, day-old chicks, and feeding stuffs. Strenuous efforts were being made to lessen the toll of mortality among the chickens. The utmost research into the pathology of diseases which had caused the losses among poultry was being continued by the scientific bodies concerned. Any further measures which might be taken would be of an administrative character when the new central veterinary service came into being. Referring to the immense burden of animal diseases, which cost the industry something like £14,000,000 a year, the right hon. gentleman said that a great deal of work had been done in the past by local authorities and by the Ministry's veterinary service, and practical results had been obtained. During the last financial year there were 13 centres of infection from foot-and-mouth disease, and these comprised 66 separate premises. The policy which had been carried out had had the result that the disease had not become

endemic in this country, as it had in some of our continental neighbours. It could be regarded as a hopeful sign that the incidence of this disease on the Continent seemed to be declining. There was a slight increase in the incidence of anthrax, but a satisfactory decrease in swine fever and sheep scab. There were still diseases like tuberculosis, contagious abortion, mastitis, and others which took an immense toll of our cattle. The proposals which he had recently announced would involve legislation, and represented a very much bigger step forward and a much more resolute attack on this problem than had yet been made. He hoped, with the coöperation of those concerned, that it would yield substantial results in freeing the industry from a wasteful burden.

Replying to the debate which followed, Mr. Morrison said that the Ministry of Agriculture had under investigation a diagnosis by which it might be possible to detect Johne's disease in its early stages and not only effect a cure but prevent infection. This was being tried out, and they hoped in a short time to know whether it was a good thing or not.

Some Colonial Health Problems

In the House of Commons on June 2nd on a Colonial Office vote Mr. Ormsby-Gore, Secretary of State for the Colonies, referred to social conditions in Hong-Kong and the Straits Settlements. The reports, both majority and minority, of the mui-tsai question had, he said, been sent to the governors of these two colonies asking for their considered views. In both colonies the predominant element was a shifting Chinese population among which for centuries there had been social customs repugnant to British ideas. The British Government has set its hand to eradicate or mitigate the evils from these customs and was not going to turn back. But despite all its efforts mui-tsai and other customs went on, and devices such as adoption were resorted to in order to get round the law. There was, however, a growing public opinion of a more Western character, and it was essential for real success to carry the Chinese population with them.

Mr. LUNN said there was no method of dealing with the buying and selling of human beings except by total abolition. He went on to deplore the conditions of health in the West Indies, where malaria and typhoid were common, food was poor and lacking in nutritive value, sanitation was bad, people were living in overcrowded conditions, wages were low, and unemployment rife.

Mr. DE ROTHSCHILD recalled an investigation made by the Ross Institute showing that on the seisal estates in East Africa the work performed by native labourers was only a sixth of the value of that done by Malayan labourers. This could be attributed to defective sanitation, lack of malarial control, poor nutrition, and bad working conditions in general.

Miss HORSBRUGH said while they could not abolish the system of mui-tsai all at once, there should be immediate notification of the transfer of children under the age of 12 and a register of all who were living away from their family, up to the age of 16 or 18.

Sir ERNEST GRAHAM-LITTLE compared the state of hygiene in East Africa with that on the West Coast, where the land was largely held by the natives. In Kenya the density of population in the native reserves, up to 250 to the square mile, exceeded that in British India. Most unfortunate was the inability of the native to pay the land tax in Nyasaland, where 50 per cent. of the adult males had left the district to work in other parts of British Africa and the tribal system had broken up. He went on to compare health conditions among the Masai and the Kikuyu, whose diet had weakened their resistance to disease, and to cite the alarming incidence of disease in certain parts of Kenya, where climatic conditions were favourable and venereal disease infrequent, but anæmia, malnutrition, yaws, pyorrhœa, malaria, hookworm, and tuberculosis were rife. These were preventable diseases and it was a grave indictment against British rule for preventable diseases to prevail on this scale. The primary difficulty might be lack of funds, but the research laboratory in Nairobi provided pathological data which would cost at the ordinary price over £20,000 a year. He hoped it would be possible for the Colonial Office to provide further assistance for medical research.

Mr. SORENSEN noted the decline in physical well-being of the natives mentioned in recent reports from the Gold Coast, where the medical staff had declined and less personal attention could be given. In 1929, he said, 90 medical officers attended to 250,000 patients, whereas in 1935 there were only 66 medical officers for 273,000 patients. There was a shortage of staff for the treatment of leprosy and nothing being done to investigate the incidence of silicosis and tuberculosis. A class of native capitalists now growing up unaccustomed to stringent public health and other restrictions might easily create conditions in which ill health was bred. He understood that only 10 per cent. of the children of school age were receiving education.

Mr. ORMSBY-GORE, replying to the debate, claimed that on the whole conditions were better in the British colonial empire than in any other, and that remarkable progress had been made in the last ten or fifteen years. Before incurring expenditure for medical research he must take advice from the Medical Research Council. The causes of most tropical diseases were known; the only way to deal with malaria was to kill the mosquitoes, and remarkable work in controlling yaws was being done by the British medical staff all over Africa.

On June 8th, in the House of Lords, the Widows', Orphans', and Old Age Contributory Pensions (Voluntary Contributors) Bill passed through Committee. The Poor's Allotments in Walton-upon-Thames Bill was read the third time, and passed.

QUESTION TIME

WEDNESDAY, JUNE 2ND

Eradication of Animal Diseases

Mr. HENDERSON STEWART asked the Minister of Agriculture if any provision was being made in his long-term policy for the eradication of disease in livestock, for reducing the mortality caused by grass sickness in horses, disease in poultry, and swine fever among pigs.—Mr. RAMSBOTHAM replied: The Government's policy for the eradication of disease in livestock, which my right hon. friend announced last Thursday, will extend, as circumstances permit, to all classes of farm animals, including poultry, although efforts will be mainly directed in the first instance to the eradication of disease among cattle. It is impracticable, in the present state of knowledge, to recommend immediate measures for reducing the mortality caused by grass sickness in horses. As regards poultry diseases, my right hon. friend is considering what steps can usefully be taken pending the report of the Technical Committee, which is examining methods of distribution of breeding stock, hatching eggs, and day-old chicks, with particular reference to mortality. The policy now in force for the control of swine fever will continue. Research in all matters is being actively pursued under the auspices of the Agricultural Research Council in collaboration with the Agricultural Departments.

THURSDAY, JUNE 3RD

Drunkenness in London during Coronation Week

Sir ALFRED BEIT asked the Home Secretary the number of persons arrested for being drunk and disorderly in the County of London during Coronation week; and the number so arrested during the corresponding week of 1936.—Sir SAMUEL HOARE replied: I regret that the particulars asked for by my hon. friend could not be

extracted without a considerable expenditure of time and labour. I can, however, inform him that the number of persons charged with drunkenness of all kinds in the whole Metropolitan police district during Coronation week was 492. The figures for the corresponding week in 1936 are not available, but the figure for the week preceding Coronation week was 405.

Watered Milk

Mr. JENKINS asked the Minister of Health if his attention had been called to the report of the analyst for the county of Monmouthshire in which it was stated that the composition of a large number of milk samples was highly unsatisfactory, as in a number of cases a large percentage of water had been added, and in other cases the amount of fat removed was extremely high; and what steps he proposed to take to ensure to the public that milk available for sale should be of the highest quality and free from adulteration.—Sir KINGSLEY WOOD replied: My attention had been called to this report and I am in communication with the county council in the matter.

MONDAY, JUNE 7TH

Ventilation of the House of Commons

Mr. BOSSOM asked the First Commissioner of Works whether, seeing the great advances made in recent years in the science of ventilation, he would cause an investigation to be made to ascertain if the ventilation of this chamber could be made more satisfactory during the recess this summer.—Sir PHILIP SASSOON replied: I will send my hon. friend a copy of the note which was circulated to Members in July of last year. The investigations described in that note are proceeding, but I do not anticipate that they will be concluded in time to enable improvements to be effected during the coming long recess.

Tuberculin-tested Herds

Mr. KELLY asked the Minister of Agriculture the number of approved tuberculin-tested herds in Great Britain.—Mr. BERNAYS, Parliamentary Secretary to the Ministry of Health, replied: On March 31st last there were 1795 herds in England and Wales licensed for the production of tuberculin-tested milk. I am informed by my right hon. friend the Minister of Agriculture that there are at present in England and Wales 293 attested herds (which are tuberculin-tested) on the register kept by his Department. This number includes 84 herds which are also licensed for the production of tuberculin-tested milk.

Health of Spanish Refugee Children

Miss CAZALET asked the Minister of Health what was the present position regarding the health of the Basque children who had been brought into this country.—Mr. BERNAYS replied: According to the information in my possession the general health of these children is satisfactory; but my right hon. friend is advised that it is highly desirable on grounds of public health that the number of children in the camp at North Stoneham should be reduced as speedily as possible, and he understands that the National Joint Committee for Spanish Relief are in accord with this view. Evacuation is in progress, and about 900 of the 4000 children have already been transferred elsewhere. Five cases of typhoid fever, two cases of diphtheria, and three cases of measles have occurred among the children. The patients have been isolated, and appropriate precautionary measures have been taken against the spread of infection.

Nutrition and Minimum Income

Mr. SANDYS asked the Minister of Health whether His Majesty's Government accepted Mr. Seebohm Rowntree's recently published estimate of the minimum income required to provide the essentials of life to which his attention had been drawn; and, if not, whether his department had made any such estimate of its own.—Mr. BERNAYS replied: No, Sir. My right hon. friend is advised that this estimate involves certain features that are very conjectural, and no sufficient official material for the preparation of an estimate of this kind is at present available.

Milk Rations for Enlisted Boys

Mr. GRAHAM WHITE asked the Secretary of State for War the present amount of the daily milk ration for enlisted boys.—Sir V. WARRENDER, Financial Secretary to the War Office, replied: The daily ration of milk for enlisted boys is half a pint a day in addition to a variable quantity required for hot beverages, puddings, &c. The boys at the Army Technical School, Beachley, receive three-quarters of a pint a day in addition to one-quarter of a pint for other purposes.

TUESDAY, JUNE 8TH

Ex-Service Men in Mental Hospitals

Mr. KELLY asked the Minister of Pensions the number of ex-Service men under treatment in mental hospitals in this country for whose maintenance his department was responsible.—Mr. H. RAMSBOTHAM replied: The number of officers, nurses, and other ranks for whose treatment in mental institutions my department was responsible at end of May, 1937, was 5770.

Scientists Employed by Ministry of Health

Mr. MARKHAM asked the Minister of Health how many scientists were at present employed in the Ministry; and how this figure compared with that of 1930.—Sir KINGSLEY WOOD replied: On April 1st, 1937, the scientific staff of the Ministry other than the medical and dental staffs totalled 13. This figure included a chemist, chemical inspector, alkali inspectors, and pharmacists. The corresponding figure at April 1st, 1930, was 13. The medical and dental staffs at the same dates were respectively:—

Medical staff ..	1930 ..	104	1937 ..	115
Dental staff ..	,, ..	12	,, ..	16

In addition, the department's establishment in both years included a post of serologist, which was temporarily vacant on April 1st last and will shortly be filled.

Vacancies

For further information refer to the advertisement columns

Aberdeen Royal Infirmary.—Two Hon. Asst. Ophth. Surgeons.
Acton Hosp., W.—Cas. O., at rate of £150.
Ashford Hosp., Kent.—Res. M.O., £150.
Barnsley, Beckett Hosp. and Dispensary.—Jun. H. S., £200.
Bath, Royal United Hosp.—H.P., at rate of £150.
Bedford County Hosp.—Second H.S., at rate of £150.
Birmingham and Midland Eye Hosp.—H.S., at rate of £130-£150.
Birmingham Maternity Hosp.—H.S., at rate of £75.
Birmingham, Selly Oak Hosp.—Jun. M.O.'s, each at rate of £200.
Bolton Royal Infirmary.—H.P. and Two H.S.'s, at rate of £200 and £150 respectively.
Bradford Children's Hosp.—H.S., £150.
Brighton Municipal Hosp.—Third Res. Asst. M.O., £300.
Bradford Royal Eye and Ear Hosp.—Two H.S.'s, each £180.
Brighton, Royal Alexandra Hosp. for Sick Children.—H.P., £120.
Brighton, Royal Sussex County Hosp.—Cas. H.S., £120.
Bristol General Hosp.—Two H.P.'s, Three H.S.'s, Res. Obstet. O., H.S. to Spec. Depts, each at rate of £80. Also Cas. H.S., at rate of £100.
British Red Cross Society Clinic for Rheumatism, Peto-place, N.W.—Hon. Dental Surgeon.
Cardiff City Lodge Hosp.—Jun. Res. M.O., £150.
Cardiff, King Edward VII Welsh National Memorial Assoc.—Res. Asst. Tuber. M.O., £500. Also Res. M.O. for South Wales Sanatorium, £350.
Carlisle, Cumberland Infirmary.—H.S., at rate of £155.
Central London Throat, Nose, and Ear Hosp., Gray's Inn-road, W.C.—Hon. Assts. to Out-patient Dept.
Charing Cross Hosp., W.C.—Hon. Orthopædic Surgeon. Also Hon. Clin. Asst. to X Ray and Electrotherapeutics Dept.
Chelmsford C.C.—Temporary Tuber. O., £15 per week.
Chesterfield and North Derbyshire Royal Hosp.—Res. Surg. O., £300. Also H.S., at rate of £150.
Chichester, Royal West Sussex Hosp.—Jun. H.S., £125.
City of London Mental Hosp., Stone, Nr. Dartford.—Asst. M.O., £400.
Colchester, Essex County Hosp.—H.S., £175.
Connaught Hosp., E.—Hon. Surgeon.
Coventry and Warwickshire Hosp.—Res. H.S. and Res. Cas. O., each £150.
Down County Mental Hosp., Downpatrick.—Jun. Asst. M.O., £350.
Dreadnought Hosp., Greenwich, S.E.—Receiving Room Officer, at rate of £200. Also H.P. and H.S., each at rate of £110.

Durham County Council.—Deputy County M.O.H., £960. Also Asst. Welfare M.O., £500.
Durham County Hosp.—H.S., at rate of £150.
Dumfries and Galloway Royal Infirmary.—Res. H.S., at rate of £100.
East Ham Memorial Hosp., Shrewsbury-road, E.—Hon. Surgeon to Orthopædic Dept. Also two Anæsthetists, each 1 guinea per session.
Elizabeth Garrett Anderson Hosp., Euston-road, N.W.—Hon. Asst. Phys. Also H.P., First and Second H.S.'s, and Obstet. Asst., each at rate of £50.
Erith U.D.C.—Asst. M.O.H. and Asst. School M.O., £500.
Exeter, Royal Devon and Exeter Hosp.—H.S., at rate of £150.
Gloucestershire Royal Infirmary and Eye Institution.—H.S. and H.P., each at rate of £150.
Hampstead General and North-West London Hosp., Haverstock-hill, N.W.—H.S., at rate of £100.
Heston and Isleworth Borough.—Asst. M.O.H. and School M.O., £500.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Res. H.P., at rate of £100.
Hosp. for Sick Children, Great Ormond-street, W.C.—Res. M.O. for Country Branch, at rate of £200.
Hosp. for Tropical Diseases, Gordon-street, W.C.—H.P., at rate of £120.
Hull Royal Infirmary.—Second H.P. and H.S. to Ophth. and Ear, Nose and Throat Depts., each at rate of £150. Also H.S. for Branch Hospital, at rate of £160.
Ilford, King George Hosp.—Two H.S.'s, each at rate of £100.
Institute for the Scientific Treatment of Delinquency, Portman-street, W.—Med. Reg., £300.
Ipswich, East Suffolk, and Ipswich Hosp.—Cas. O., H.S. to Orthopædic and Fracture Dept., and H.S. to General Surgeon and Genito-Urinary Surgeon, each £144.
Kettering and District General Hosp.—H.S. and H.P., at rate of £160 and £140, respectively.
Lancaster County Mental Hosp.—Asst. M.O., £506.
Leeds General Infirmary.—Hon. Asst. Physician.
Leeds, Menston Mental Hosp.—Asst. M.O., £350.
Leicester Royal Infirmary.—Res. Radiologist, at rate of £200.
Liverpool County Mental Hosp., Rainhill.—Second Asst. M.O., £650. Also Asst. M.O., 7 guineas per week.
Liverpool, Hahnemann Hosp., Hope-street.—Res. M.O., at rate of £120.
Liverpool Royal Children's Hosp.—Two Res. H.P.'s and two Res. H.S.'s for City Branch, each at rate of £100. Also Res. M.O. and Res. Surg. O. for Heswall Branch, each at rate of £120.
London University.—Examinerships.
Manchester, Ancoats Hosp.—Cas. O. £250.
Manchester, Crumpsall Hosp.—Res. Asst. M.O., at rate of £200.
Manchester Park Hosp., Davyhulme.—Second Res. M.O., at rate of £225.
Manchester Royal Children's Hosp.—Sen. M.O., £300.
Manchester Royal Infirmary.—Technical Asst. for Clinical Laboratory Work, £200. Also Jun. Asst. M.O. (Locum) to Radiological Dept., 8 guineas per week.
Manchester and Salford Hosp. for Skin Diseases.—H.S., at rate of £150.
Marie Curie Hosp, 2, Fitzjohn's-avenue, N.W.—Asst. Director, from £500. Also Res. M.O., £100.
Middlesbrough, North Riding Infirmary.—Sen. H.S. and Third H.S., at rate of £175 and £140 respectively.
Newcastle General Hosp.—Two H.S.'s and H.P., each at rate of £150.
Newcastle-upon-Tyne, Royal Victoria Infirmary.—Registrar to Throat and Ear Dept., £100.
Northampton General Hosp.—H.S., at rate of £150.
North Middlesex and County Hosp., Edmonton.—Asst. M.O., at rate of £350. Also Jun. Res. Asst. M.O., at rate of £250.
Nottingham General Hosp.—Res. Cas. O. and H.S. to Ear, Nose, and Throat Dept., each at rate of £150.
Oldham Municipal Hosp.—Res. Asst. M.O., at rate of £200.
Paddington Green Children's Hosp., W.—H.S., at rate of £150.
Plymouth City Hosp.—Deputy Med. Supt., £450.
Plymouth, Prince of Wales's Hosp., Greenbank-road.—H.S., at rate of £120.
Pontefract General Infirmary.—Jun. Res. M.O., at rate of £150.
Preston and County of Lancaster Royal Infirmary.—Two H.S.'s, each at rate of £150.
Princess Louise Kensington Hosp. for Children, St. Quintin-avenue, W.—H.S., at rate of £120–£150.
Putney Hosp., Lower Common, S.W.—Jun. M.O., at rate of £100.
Queen Charlotte's Maternity Hosp., Marylebone-road, N.W.—Res. M.O. for Isolation Hosp., at rate of £200.
Reading, Royal Berkshire Hosp.—Cas. O., at rate of £150.
Rotherham Hosp.—H.S. for Ophth. and Ear, Nose, and Throat Depts., £120.
Royal Air Force Medical Service.—Commissions.
Royal Dental Hosp. of London, 32, Leicester-square, W.C.—Anæsthetists.
St. Helens County Borough.—Asst. M.O.H., £500.
St. Paul's Hosp. for Urological and Skin Diseases, Endell-street, W.C.—H.S., at rate of £100.
Salford, Hope Hosp.—Asst. Res. M.O., at rate of £200.
Salford, Infectious Diseases Hosp.—Jun. Asst. Res. M.O., £200.
Salisbury General Infirmary.—Res. M.O., £250. Also H.P., at rate of £125.
Sheffield Children's Hosp.—H.S., £100.
Southampton Borough General Hosp.—Res. Obstet. M.O., £350.
Southampton, Royal South Hants and Southampton Hosp.—Cas O., and Res. Anæsthetist and H.S. to Ear, Nose, and Throat Dept., each at rate of £150.
Southend-on-Sea General Hosp.—Res. Obstet. O., at rate of £100.
Southern Rhodesia Medical Service.—Government M.O., £600–£750.
Stamford, Rutland and General Infirmary.—H.S., at rate of £250.
Stoke-on-Trent, Burslem, Haywood, and Tunstall War Memorial Hosp.—Res. H.S., at rate of £175.
Stoke-on-Trent, Longton Hosp.—H.S., £160.
Stoke-on-Trent, North Staffordshire Royal Infirmary.—H.S. for Aural and Ophth. Dept., at rate of £150.
Sunderland Children's Hosp.—H.P. and H.S., each £120.
Sunderland Royal Infirmary.—H.S., £120.
Surrey County Mental Hosp. Service.—Jun. Asst. M.O.'s, each £350.
Tilbury Hosp., Essex.—H.S., at rate of £140.
Tunbridge Wells, Kent and Sussex Hosp.—H.S. and Cas. O., £150.
University College Hosp., W.C.—Bilton Pollard Fellowship, £650.
Wakefield, Clayton Hosp.—Sen. H.S., £250.
Warwick, King Edward VII Memorial Sanatorium, Hertford Hill. Jun. Asst. M.O., £250.
Watford and District Peace Memorial Hosp.—H.S., at rate of £150.
West Ham Mental Hosp., Goodmayes.—Jun. Asst. M.O., £350.
Westminster Hosp., Broad Sanctuary, S.W.—Dental Surgeon.
Willesden General Hosp., Harlesden-road, N.W.—Cas. O., at rate of £100.
Wolverhampton County Borough.—Asst. M.O.H., £650.
Wolverhampton Royal Hosp.—Hon. Asst. Surgeon and Hon. Asst. Gynæcologist.
Worcester Royal Infirmary.—H.S. to Gynæcological Dept., £140.
York County Hosp.—H.P., £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Hanley (Staffs), Tunbridge Wells (Kent), and Wool (Dorset).

Medical Referee under the Workmen's Compensation Act, 1925, for ophthalmic cases arising in the Sheriffdom of Lanark. Applications should be addressed, the Private Secretary, Scottish Office, Whitehall, London, S.W.1, before June 30th.

Births, Marriages, and Deaths

BIRTHS

BATEMAN.—On June 3rd, at Eton-avenue, N.W., the wife of Mr. Geoffrey H. Bateman, F.R.C.S., of a son.

BAYNES.—On June 5th at West Byfleet, Surrey, the wife of Dr. H. Godwin Baynes, of a daughter.

CORRY.—On May 29th, the wife of Mr. Cedric Corry, F.R.C.S., of Oxford, of a son.

KONSTAM.—On June 4th, at Wildwood-rise, N.W., the wife of Dr. Geoffrey Konstam, of a daughter.

MACLEAN.—On June 3rd, at Devonshire-place, W., the wife of Dr. D. Maclean, of Harpenden, of a daughter.

MUMMERY.—On June 5th, at Welbeck-street, W., the wife of Dr. Raymond Mummery, of a daughter.

MURTAGH.—On June 1st, the wife of Dr. Harold Murtagh, of Ripponden, of twins (a girl and a boy; boy stillborn).

PERCIVAL.—On June 1st, the wife of Lt.-Col. E. Percival, D.S.O., R.A.M.C., of Fleet, Hants, of a son.

SADLER.—On June 3rd, at West Wittering, Chichester, the wife of Dr. C. R. Sadler, of a daughter.

WAYNE.—On June 4th, the wife of Prof. Edward J. Wayne, F.R.C.P., of Sheffield, of a daughter.

WOODHOUSE.—On May 30th, at Royal Naval Hospital, Portland, the wife of Surg.-Comdr. G. W. Woodhouse, of a son.

MARRIAGES

BOYD—PEART.—On June 3rd, at Hungerford Parish Church, Douglas Herbert Stuart Boyd, M.B., to Margaret, younger daughter of Mr. A. R. Peart, of Hungerford, Berks.

LAURENT—BAKER.—On June 3rd, at Hampstead Town Hall, Louis Philippe Eugène Laurent, M.D. Lond., to Phyllis Margaret, only daughter of C. H. Collins Baker, C.V.O., of the Huntington Library, California.

ROBERTSON—WATT.—On June 3rd, at St. Paul's-street Congregational Church, Aberdeen, Capt. Hamish Gordon Grant Robertson, R.A.M.C., to Marjorie Mary Watt, eldest daughter of the Lord Provost of Aberdeen.

WARNER—MICHELSON.—On June 4th, Frederick Sydney Warner, M.R.C.S., L.D.S., to Cicely Florence Michelson.

DEATHS

BARBER.—On June 4th, at Haywards Heath, Halford Vaughan Barber, M.A. Camb., L.R.C.P. Lond., aged 83.

BARKER.—On June 2nd, at Woking, the residence of his sister-in-law, Percy Duckworth Barker, M.R.C.S. Eng., aged 63.

BENNETT.—On June 3rd, Claude John Eddowes Bennett, M.R.C.S. Eng., D.P.H., of Inglewood, Melksham.

CHUBB.—On May 31st, at Pitt-street, W., William Lindsay Chubb, M.B.E., M.D. Durh., formerly in practice at Sandgate, Kent, and Farnborough, Hants.

EDGAR.—On June 1st, at Troy-court, Kensington, W., Peter Galston Edgar, M.B. Edin., aged 68.

HARVEY.—On June 4th, at Letchworth, William Fryer Harvey, M.B. Oxon., aged 52.

ROBERTSON.—On June 4th, at Wellington, New Zealand, Alexander Robertson, M.D. Glasg.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

PROTAMINE INSULIN

WRITING last January Dr. P. Wolff [1] of Geneva was already able to review 140 papers on the new insulin compounds with a slow action. The conclusions he draws from these and from his own experience may be summarised as follows.

(1) The treatment of severe diabetes is both safer and simpler with the new compounds than with ordinary insulin.

(2) Absorption being slower, wide changes in blood-sugar are prevented, and hypoglycæmic reactions are less common and milder.

(3) A high fasting blood-sugar is the special indication for protamine insulin, since it is of great advantage to the diabetic to begin the day with an approximately normal metabolism.

(4) Insulin-sensitive patients can be more satisfactorily controlled with protamine insulin because frequent reactions are avoided.

(5) Young diabetics respond more favourably to protamine than to ordinary insulin.

(6) The dosage as well as the number of injections can often be reduced by using protamine insulin, and some patients are able to abandon insulin altogether after treatment with it.

(7) Diabetics coming under care for the first time should be given protamine insulin, for in this way their treatment can be stabilised satisfactorily with a single dose daily.

(8) There are no important disadvantages in the new preparations as compared with the old, but in acute cases they are unsuitable, and in pre- and post-operative conditions, coma, acidosis, and injections they should be only gradually substituted for the old.

(9) Protamine insulin offers a great advance towards giving the diabetic a completely physiological nutrition.

These conclusions sound more favourable to protamine insulin than those contributed to our last issue by Dr. Izod Bennett and his colleagues at the Middlesex Hospital. But Dr. Wolff is himself doubtful whether any form of retard insulin has yet been sufficiently studied to warrant general use outside the clinic; their administration must be adjusted to individual cases, and not applied by any rule of thumb. The possibility that they may offer a better control of the disease as a whole is nevertheless a high one, and a more continuously normal level of the blood-sugar must be of advantage. E. P. Joslin, who has already treated over 700 diabetics with the new preparations, speaks of the new "Hagedorn era" and hopes that, especially, the risk to vessels, nerves, and eyes of diabetics may at last be overcome.

HOSPITAL LIBRARIES

MANCHESTER has an advantage over London in the organisation of a hospital library service as hospitals and libraries are both under the control of the same local authority. Mr. C. Nowell, chief librarian of Manchester, gave to a meeting included in the annual conference of the Library Association at Scarborough last week an admirable account of what has been accomplished under his direction. Starting with the proposition that a hospital library service is more than the supply of books to patients he described its value to nurses and maids as well as to doctors, engineers, porters, and administrative staff. In one hospital belonging to the corporation, but many miles from Manchester, with a staff of two hundred a collection of books is maintained for their use as well as for the patients, and any book specially required by a doctor or other member of the staff can be obtained on request. In London the County Council have an arrangement with the British Red Cross library which by the terms of its trust is limited to patients. For the hospitals in Manchester whether council or voluntary there is a special committee working in the closest coöperation with the Corporation Libraries Committee. The organisation is under professional direction with voluntary helpers drawn from a wide range of organisations, including the Dickens Fellowship who have been particularly excellent in one hospital. The libraries department is responsible that all books issued are good of their kind, in good condition, and cared for at least as much as the general library stock. The repair and binding of the books is also supervised by the public library staff. In order to have the assistance of the central committee it is essential for a hospital to have a recognised supervisor in charge belonging preferably to an already existing organisation, created for some wider purpose, which gives strength to the team and provides the very necessary reservists for substitutes. Members of Toc H and the League of Women Helpers have been particularly acceptable on this account.

The qualifications of the library helper were described by Mr. Nowell to be: "A book-lover but no highbrow, a pleasing personality with not too much of the bedside manner, the capacity for not just taking on a job of work, but for sticking to it; loyalty to the service and a love of it for its own sake." The principal difficulty has been to find suitable rooms for library purposes and Mr. Nowell entered a plea that for all new hospitals a library department—centrally situated—will be planned. Special reference was made to mental hospitals and Mr. Nowell expressed his conviction that this work to be successful must be in the hands of a trained librarian; though at the same time he did not regard the service as highly specialised but rather that the patients should be catered for exactly in the same way as the general reader in the public library.

It is clear that under professional direction the work of voluntary helpers can be rendered more efficient and the service more beneficial to the patients and staff whether in general or mental hospitals.

THE BIOCHEMISTRY OF MILK SECRETION

ON May 1st we referred to the intensive study of milk production now being made at the National Institute for Research in Dairying, at Reading—a study which must stimulate analogous thought on human lactation. In a paper since read before the Royal Society of Arts, Prof. H. D. Kay, now director of the Institute, described the influence on lactation of various factors, including hormones. The parts played by hormones in bringing about mammary development and lactation, long suspected, are now sufficiently understood for the processes to be induced in the male of some animals by means of œstrin, progestin, and prolactin; but the effects of hormones—of œstrin and thyroxine in particular—on established lactation in the cow are not what would be immediately guessed from clinical experience. If a sufficient dose of œstrin is administered to a lactating cow the animal is brought into season within a few hours, and there is also a moderate fall in the milk volume. This accords with most farmers' experience that the quantity of milk often falls when a cow comes into season. But the fall caused by œstrin is succeeded by a rise to the previous level or even above, and at the same time an increase, of the order of 10 per cent., in the proportion of fat and non-fatty solids in the milk. The increase, if the dose of œstrin is large, may persist for considerable periods, having been observed in two cows for two months. Perhaps the minor digestive disturbances that commonly affect infants when their mothers menstruate during lactation may be attributable to an enrichment of the milk comparable to the enrichment seen in these cows.

Thyroxine and dried thyroid were dramatic in their effect on cows, the milk yield increasing by 25–30 per

[1] Über einige neue Arzneimittel. II. 5. Insulinpräparate mit verzögerter Wirkung. By P. Wolff. Reprinted from the *Schweiz. med. Jahrbuch*. Basel: B. Schwabe and Co. 1937.

cent., the fat by 16 per cent., and the total yield of butter fat per day by 50 per cent. If a similar effect is obtained in women it will seem that the anxiety of some types of mother, which is traditionally a cause of failure to breast-feed, is not related to excessive thyroid secretion.

Speaking of the excretion of individual constituents of milk Prof. Kay said that the amount of phosphatase in milk may be taken as an index of the efficiency of the gland; its concentration is least in the milk at the height of normal lactation and is also low in the abundant and rich secretion of milk after thyroid administration. In mastitis, on the other hand, the phosphatase concentration is high.

Comparison of the venous and arterial blood of the gland has shown that in all probability the lactose of milk is derived from blood glucose, the several phosphorus compounds from the inorganic phosphate of the plasma (and not from the much larger quantities of organic phosphorus compounds in the blood), and part of the casein and the albumin from circulating amino-acids.

NUTRITIONAL RETROBULBAR NEURITIS.—Dr. Fitzgerald Moore asks us to say that in his paper published in our issue of May 22nd a sentence on p. 1226 under the heading of Ætiology should read: "Thus it has not been possible yet for me to prove therapeutically that ophthalmological response is due to *vitamin-B_2* treatment exclusively, but other general evidence is so strong that I believe this certainly to be only awaiting confirmation in this respect." In the article as printed the word italicised appeared as *vitamin-B*.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, June 15th.—5.30 P.M., general meeting of fellows.
THURSDAY.
Dermatology. 5 P.M. (Cases at 4 P.M.). Dr. Elizabeth Hunt: 1. Rodent Ulcer. Dr. H. C. Semon: 2. Poikilodermia. 3. Case for Diagnosis. † Sarcoid Simulating Rhinophyma.
FRIDAY.
Obstetrics and Gynæcology. 8 P.M. Annual general meeting. Dame Louise McIlroy: Results of Radium Treatment on Carcinoma of the Uterus and Uterine Hæmorrhage. Mr. A. C. Palmer: The Treatment of the Prolapse Syndrome and Reconstruction of the Pelvic Diaphragm and Vaginal Hysterectomy in One Operation. (Cinematograph film.)
Laryngology and Otology. 9.30 A.M. (Norfolk and Norwich Hospital, Norwich), Mr. E. D. D. Davis, Dr. S. H. Mygind (Copenhagen), Mr. G. H. Howells, and Mr. F. C. W. Capps: Orbital Cellulitis due to Sinus Infection and its Treatment. Dr. J. H. Ebbs (Birmingham): Early Bronchiectasis in Children, and its relation to Ear, Nose, and Throat Diseases of Children. Dr. Branford Morgan (Norwich): The Relation of the Ear, Nose, and Throat to the Diseases of Children. Mr. F. C. Ormerod: Tubercular Ulcerations of the Mouth and Pharynx. 2.30-4 P.M., Demonstration and Discussion of Cases.
SATURDAY.
Laryngology and Otology. 9.30 A.M. Dr. S. H. Mygind: Problems of Aural Medicine. Dr. Phyllis Kerridge: Hearing and Speech in Deaf Children. Mr. Hamblen Thomas: Physical Aspects of Tinnitus. Dr. M. Sourdille (Nantes): The Present State of the Surgical Treatment of Otosclerosis.
Disease in Children. 1.30 P.M., Visit to Royal Manchester Children's Hospital, Pendlebury. Tour of the new Zachary Merton Convalescent Home and Isolation Block. 2.15 P.M., Demonstration of cases in the wards of the Hospital. 4.15 P.M., demonstration of cases at the Duchess of York Hospital for Babies.

EUGENICS SOCIETY.
TUESDAY, June 15th.—5.15 P.M. (Linnean Society, Burlington House, Piccadilly, W.), Prof. W. G. Miller: Veterinary Eugenics.

RESEARCH DEFENCE SOCIETY.
TUESDAY, June 15th.—3 P.M. (London School of Hygiene, Keppel-street, W.C.), Prof. G. Grey Turner: What Research Owes to the Paget Tradition. (Stephen Paget memorial lecture.)

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Manson House, 26, Portland-place, W.
THURSDAY, June 17th.—8.15 P.M., annual general meeting. 8.30 P.M., Mr. Henry Foy (Salonika): Blackwater Fever in Macedonia. Dr. N. Hamilton Fairley and Mr. R. J. Bromfield: Pseudo-methæmoglobin in Blackwater Fever and its Clinical Significance.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.
TUESDAY, June 15th.—4.30 P.M., Dr. D. Hunter: Occupational Diseases.
WEDNESDAY.—Noon, clinical and pathological conference (medical). 2 P.M., Dr. J. Gray: Cerebral Hæmorrhage and Softening. 3 P.M., clinical and pathological conference (surgical). 4.30 P.M., Prof. M. Greenwood, F.R.S.: Experimental Epidemiology.
THURSDAY.—2.15 P.M., Dr. Duncan White: Radiological Demonstration. 3 P.M., operative obstetrics. 3.30 P.M., Mr. A. K. Henry: Demonstrations of the Cadaver on Surgical Exposures.
FRIDAY.—3 P.M., clinical and pathological conference (obstetrics and gynæcology).
Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics, and operations, obstetrical and gynæcological clinics and operations.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.6.
MONDAY, June 14th.—10 A.M., Dr. Post: X Ray Film Demonstration. Skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics. 4.15 P.M., Mr. Arnold Walker: Antenatal Care.
TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Dr. Hugh Gordon: Treatment of Common Skin Complaints.
WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics. 4.15 P.M., Mr. Harvey Jackson: Diseases of the Rectum.
THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics.
FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Mr. Vlasto: Minor Problems on Oto-laryngology.
SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.
The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, June 14th, to SUNDAY, June 20th.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. All-day course in gynæcology.—BROMPTON HOSPITAL, S.W. M.R.C.P. course in chest diseases, 5 P.M., twice weekly. —LONDON CHEST HOSPITAL, Victoria Park, E., Wed. and Fri. 6 P.M., M.R.C.P. course in heart and lung diseases.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W., Tues. and Thurs., 8 P.M., clinical and pathological course.—PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N., Sat. and Sun., course in general surgery.
Courses are open only to members of the fellowship.

ST. BARTHOLOMEW'S HOSPITAL, E.C.
THURSDAY, June 17th.—1.30 P.M., medical cases. 3 P.M., surgical cases. 4.30 P.M., X ray demonstrations.
FRIDAY.—10 A.M., Dr. A. E. Gow: Treatment of Chronic Diarrhœa. 11 A.M., Mr. G. L. Keynes: Carcinoma of the Breast. Noon, Dr. A. C. Roxburgh: Demonstrations of cases of diseases of the skin. 1.45 P.M., Dr. H. F. Brewer: Blood-grouping and the Pathological Physiology of the Anæmias. 2.45 P.M., Mr. H. J. Burrows: Treatment of Sacro-iliac Pain. 4 P.M., Mr. R. Foster Moore: Some of the Common External Diseases of the Eye.
SATURDAY.—10 A.M., Mr. Sydney Scott: Treatment of Common Disorders of the Middle Ear. 11 A.M., Mr. C. K. Vartan: The Indications for and the Technique of Induction of Labour. Noon, Dr. D. E. Denny-Brown: Treatment of Migraine. Mr. C. Naunton Morgan: The Treatment of Pruritus Ani and Hæmorrhoids. 2.45 P.M., Dr. A. W. Franklin: The Artificial Feeding of Infants. 4 P.M., Mr. B. Rait-Smith: Pre-operative Medication and Induction of Anæsthesia.
This course is open to all medical men.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, June 17th.—2 P.M., Mr. James Crooks: Deafness in Childhood. 3 P.M., Dr. D. N. Nabarro: Interpretation of Fæcal Bacteriology.
Out-patient clinics daily at 10 A.M., ward visits at 2 P.M.

ST. MARY'S HOSPITAL, W.
TUESDAY, June 15th.—5 P.M. (Institute of Pathology and Research), Prof. J. A. Gunn: Treatment of Arrest of the Heart.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.
WEDNESDAY, June 16th.—4 P.M. (St. James' Hospital, Ouseley-road, S.W.), Mr. E. A. Lindsay: Painful Feet.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, June 15th.—4.15 P.M., Dr. J. F. Wilkinson: Achlorhydria.